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THE JOURNAL
OF
MENTAL SCIENCE.

EDITORS :

J. R. Lord, C.B.E., M.B. Henry Devine, O.B.E., M.D.
G. Douglas McRae, M.D.

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"In adopting our title of the *Journal of Mental Science*, published by authority of the *Medico-Psychological Association*, we profess that we cultivate in our pages mental science of a particular kind, namely, such mental science as appertains to medical men who are engaged in the treatment of the insane. But it has been objected that the term mental science is inapplicable, and that the term mental physiology or mental pathology, or psychology, or psychiatry (a term much affected by our German brethren), would have been more correct and appropriate; and that, moreover, we do not deal in mental science, which is properly the sphere of the aspiring metaphysical intellect. If mental science is strictly synonymous with metaphysics, these objections are certainly valid; for although we do not eschew metaphysical discussion, the aim of this JOURNAL is certainly bent upon more attainable objects than the pursuit of those recondite inquiries which have occupied the most ambitious intellects from the time of Plato to the present, with so much labour and so little result. But while we admit that metaphysics may be called one department of mental science, we maintain that mental physiology and mental pathology are also mental science under a different aspect. While metaphysics may be called speculative mental science, mental physiology and pathology, with their vast range of inquiry into insanity, education, crime, and all things which tend to preserve mental health, or to produce mental disease, are not less questions of mental science in its practical, that is in its sociological point of view. If it were not unjust to high mathematics to compare it in any way with abstruse metaphysics, it would illustrate our meaning to say that our practical mental science would fairly bear the same relation to the mental science of the physicians as applied mathematics bears to the pure science. In both instances the aim of the pure science is the attainment of abstract truth; its utility, however, frequently going no further than to serve as a gymnasium for the intellect. In both instances the mixed science aims at, and, to a certain extent, attains immediate practical results of the greatest utility to the welfare of mankind; we therefore maintain that our JOURNAL is not inaptly called the *Journal of Mental Science*, although the science may only attempt to deal with sociological and medical inquiries, relating either to the preservation of the health of the mind or to the amelioration or cure of its diseases; and although not soaring to the height of abstruse metaphysics, we only aim at such metaphysical knowledge as may be available to our purposes, as the mechanician uses the formularies of mathematics. This is our view of the kind of mental science which physicians engaged in the grave responsibility of caring for the mental health of their fellow-men may, in all modesty, pretend to cultivate; and while we cannot doubt that all additions to our certain knowledge in the speculative department of the science will be great gain, the necessities of duty and of danger must ever compel us to pursue that knowledge which is to be obtained in the practical departments of science with the earnestness of real workmen. The captain of a ship would be none the worse for being well acquainted with the higher branches of astronomical science, but it is the practical part of that science as it is applicable to navigation which he is compelled to study."—*Sir J. C. Bucknill, M.D., F.R.S.*

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- 1842. Dr. de Vitre, Lancaster.
- 1843. Dr. Conolly, Hanwell.
- 1844. Dr. Thurnam, York Retreat.
- 1847. Dr. Wintle, Warneford House, Oxford.
- 1851. Dr. Conolly, Hanwell.
- 1852. Dr. Wintle, Warneford House.

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- 1854. A. J. Sutherland, M.D., St. Luke's Hospital, London.
- 1855. J. Thurnam, M.D., Wilts County Asylum.
- 1856. J. Hitchman, M.D., Derby County Asylum.
- 1857. Forbes Winslow, M.D., Sussex House, Hammersmith.
- 1858. John Conolly, M.D., County Asylum, Hanwell.
- 1859. Sir Charles Hastings, D.C.L.
- 1860. J. C. Bucknill, M.D., Devon County Asylum.
- 1861. Joseph Lalor, M.D., Richmond Asylum, Dublin.
- 1862. John Kirkman, M.D., Suffolk County Asylum.
- 1863. David Skae, M.D., Royal Edinburgh Asylum.
- 1864. Henry Munro, M.D., Brook House, Clapton.
- 1865. Wm. Wood, M.D., Kensington House.
- 1866. W. A. F. Browne, M.D., Commissioner in Lunacy for Scotland.
- 1867. C. A. Lockhart Robertson, M.D., Haywards Heath Asylum.
- 1868. W. H. O. Sankey, M.D., Sandywell Park, Cheltenham.
- 1869. T. Laycock, M.D., Edinburgh.
- 1870. Robert Boyd, M.D., County Asylum, Wells.
- 1871. Henry Maudsley, M.D., The Lawn, Hanwell.
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- 1878. Sir J. Crichton-Browne, M.D., Lord Chancellor's Visitor.
- 1879. J. A. Lush, M.D., Fisherton House, Salisbury.
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- 1881. D. Hack Tuke, M.D., London.
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- 1883. W. Orange, M.D., State Criminal Lunatic Asylum, Broadmoor.
- 1884. Henry Rayner, M.D., County Asylum, Hanwell.
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- 1898. A. R. Urquhart, M.D., James Murray's Royal Asylum, Perth.
- 1899. J. B. Spence, O.B.E., M.D., Burntwood Asylum, nr. Lichfield, Staffordshire.
- 1900. Fletcher Beach, M.B., 79, Wimpole Street, W. 1.
- 1901. Oscar T. Woods, M.D., District Asylum, Cork, Ireland.
- 1902. J. Wilesworth, M.D., Rainhill Asylum, near Liverpool.

- 1903. Ernest W. White, *C.B.E.*, M.B., City of London Asylum, Stone, Dartford.
- 1904. R. Percy Smith, M.D., 36, Queen Anne Street, Cavendish Square, London, W. 1.
- 1905. T. Outterson Wood, M.D., 40, Margaret Street, Cavendish Square, London, W. 1.
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- 1907. P. W. MacDonald, M.D., County Asylum, Dorchester.
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- 1910. John Macpherson, M.D., Commissioner in Lunacy for Scotland.
- 1911. Wm. R. Dawson, *O.B.E.*, M.D., Inspector of Lunatic Asylums, Dublin Castle, Dublin.
- 1912. J. Greig Soutar, M.B., Barnwood House, Gloucester.
- 1913. James Chambers, M.D., The Priory, Roehampton, S.W.
- 1914-18. David G. Thomson, *C.B.E.*, M.D., County Asylum, Thorpe, Norfolk.
- 1918. John Keay, *C.B.E.*, M.D., Bangour Village, Uphall, Linlithgowshire.
- 1919. Bedford Pierce, M.D.
- 1920. William F. Menzies, M.D., Staffordshire County Mental Hospital, Cheddleton, near Leek.
- 1921. C. Hubert Bond, *C.B.E.*, M.D., Commissioner of the Board of Control.
- 1922. G. M. Robertson, M.D., Royal Hospital, Morningside, Edinburgh.
- 1923. Edwin Goodall, *C.B.E.*, M.D., City Mental Hospital, Cardiff.
- 1924. Michael J. Nolan, L.R.C.P.&S.Irel., District Asylum, Downpatrick, Ireland.

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- 1921. Sir F. W. Mott, *K.B.E.*, LL.D., M.D., F.R.C.P., F.R.S.
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- 1923. Charles Kirk Clarke, LL.D., M.D.
- 1924. J. Carswell, M.D.
- 1925. Joseph Shaw Bolton, D.Sc., M.D., F.R.C.P.

HONORARY MEMBERS.

1896. Allbutt, Sir T. Clifford, *K.C.B.*, D.L., LL.D., M.D.Camb., F.R.C.P.Lond., F.R.S., Regius Professor of Physic, Univ. Camb., St. Radegund's, Cambridge.
1918. Bevan-Lewis, William, M.Sc.Leeds, M.R.C.S., L.R.C.P.Lond., 22, Cromwell Road, Hove. (PRESIDENT, 1909-10.)
1907. Bianchi, Prof. Leonardo, Manicomio Provinciale di Napoli. Musee N. 3, Naples, Italy. (*Corr. Mem.*, 1896.)
1900. Blumer, G. Alder, M.D., L.R.C.P.Edin., Superintendent Emeritus Butler Hospital; 196, Blackstone Boulevard, Providence, R.I., U.S.A. (*Ord. Mem.*, 1890.)
1900. Bresler, Johannes, M.D., Sanitätsrat, Director of the Provincial Mental Hospital, Kreuzburg, Oberschlesien, Germany. (Editor of the *Psychiatrisch-neurologische Wochenschrift*.) (*Corr. Mem.*, 1896.)
1902. Brush, Edward N., M.D., Superintendent Emeritus, Sheppard and Enoch Pratt Hospital, Townson, Maryland; Hamilton Road, Mount Washington, Baltimore, Md., U.S.A.
1920. Colin, Dr. H., Secrétaire Général de la Société Médico-Psychologique de Paris, 26, Rue Vanquelin, Paris (V*), France.
1909. Collins, Sir Wm. Job, *K.C.V.O.*, D.L., B.Sc., M.D., M.S.Lond., F.R.C.S. Eng., 1, Albert Terrace, Regent's Park, N.W. 1.
1912. Considine, Thomas Ivory, F.R.C.S., L.R.C.P.Irel., Inspector of Lunatic Asylums, Ireland, Office of Lunatic Asylums, Dublin Castle, Dublin.
1918. Cooke, Sir Edward Marriott, *K.B.E.*, M.D.Lond., Honorary Commissioner, Board of Control, 43, Colherne Court, South Kensington, S.W. 5.
1902. Coupland, Sidney, M.D., F.R.C.P.Lond., Wootton Ridge, Boar's Hill, Oxford.
1876. Crichton-Browne, Sir J., LL.D., D.Sc., M.D.Edin., F.R.S., 45, Hans Place, London, S.W. 1. (PRESIDENT, 1878.)
1924. Dawson, Col. W. R., *O.B.E.*, B.A., M.B., B.Ch.Dubl., F.R.C.P.Irel., M.P.C., D.P.H., Chief Medical Officer, Ministry of Home Affairs, North Ireland, 26, Windsor Park, Belfast. (*Ord. Mem.*, 1894.)
1911. Donkin, Sir Horatio Bryan, M.A., M.D.Oxon., F.R.C.P.Lond., Medical Adviser to Prison Commissioners and Director of Convict Prisons, 28, Hyde Park Street, London, W. 2.
1923. Ellis, Henry Havelock, L.S.A., 14, Dover Mansions, Canterbury Road, Brixton, S.W. 9.
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1923. Rose, Sir Arthur, *D.S.O.*, Chairman of the General Board of Control for Scotland, 25, Palmerston Place, Edinburgh.
1924. Sandhurst, Lord, Barrister-at-Law; Lord Chancellor's Visitor in Lunacy, Royal Courts of Justice, Strand, W.C.

1911. Semelaigne, Dr. René, Secrétaire des Séances de la Société Médico-Psychologique de Paris, 59, Boulevard de Montmorency, Paris XVI, France. (*Corresponding Member from 1893.*)
1922. Smith, William Charles Clifford, Esq., O.B.E., F.R.I.B.A., M.I.C.E., Dudley Lodge, Wallington, Surrey.
1901. Toulouse, Dr. Edouard, Médecin des Asiles de la Seine, Directeur du Laboratoire de Psychologie expérimental à l'École des Hautes Études, Paris; Laboratoire de Psychologie Expérimentale, 1, Rue Cabanis, Paris, XIV^e, France.
1923. Willis, Sir Frederick James, K.B.E., C.B., Chairman of the Board of Control for England, 66, Victoria Street, London, S.W. 1.

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1923. Briggs, L. Vernon, M.D., 64, Beacon Street, Boston, Mass., U.S.A.
1897. Buschan, Dr. G., Stettin, Germany.
1904. Coroleü, Wilfrid, Medico forense del distrito de la Barceloneta, Aribau, 31, pral, Chañan Consejo Ciento de 7 à 8, Spain.
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1922. Morowoka, Dr., Kyushu University, Japan.
1909. Pilcz, Dr. Alexander, VIII/2 Alserstrasse 43, Wien, Austria.
1922. Sano, Dr., Gheel, Belgium.
1924. Winkler, C., M.D., Professor of Psychiatry and Neurology, Utrecht University, Holland.

MEMBERS OF THE ASSOCIATION.

Alphabetical List of Members of the Association on January 1, 1925, with the year in which they joined.

1891. Adair, Thomas Stewart, M.D., C.M.Edin., F.R.M.S., Medical Superintendent, Storthes Hall Mental Hospital, Kirkburton, near Huddersfield. (*Hon. Sec. N. and M. Division, 1908-20.*)
1910. Adam, George Henry, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, West Malling Place, Kent.
1868. Adams, Josiah Oake, M.D.Durh., L.S.A., F.R.C.S.Eng., J.P., 117, Cazenove Road, Stamford Hill, London, N. 16.
1921. Adamson, James Weeden Woodhams, M.D.Durh., M.R.C.S., L.R.C.P., L.S.A.Lond., Senior Neurologist, Ministry of Pensions Hospital, Bath.
1919. Adey, J. K., M.B., C.M.Melb., Sunbury, Victoria, Australia.
1886. Agar, S. Hollingsworth, jun., B.A.Camb., M.R.C.S.Eng., L.S.A., Hurst House, Henley-in-Arden.
1923. Ahern, John Maurice, M.B., B.Ch., R.U.I., L.R.C.P.&S.Irel., Senior Medical Officer, H.M. Prison, Liverpool.
1923. Ainsworth, Cyrus Gerald, M.A., LL.B.Camb., M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Rainhill Mental Hospital, nr. Liverpool; Elton, Bury, Lancs.
1924. Alexander, Douglas Reid, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, London County Mental Hospital, Bexley, Kent.
1899. Alexander, Hugh de Maine, M.D., C.M.Edin., Medical Superintendent, Kingseat Mental Hospital, Newmacher, Aberdeen.
1922. Alexander, Marion Cameron, M.B., B.Ch.Belf., Assistant Physician, Royal Hospital, Morningside, Edinburgh.
1899. Allmann, Dorah Elizabeth, M.B., B.Ch., R.U.I., Assistant Medical Officer, District Asylum, Armagh.
1908. Anderson, James Richard Sumner, M.B., Ch.B.Glasg., Senior Assistant Medical Officer, Cumberland and Westmorland Mental Hospital, Garlands, Carlisle.
1898. Anderson, John Sewell, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Hull City Mental Hospital, Willerby.
1921. Anderson, William, M.B., Ch.B.Aberd., Senior Assistant Physician, Royal Hospital, Aberdeen.
1918. Anderson, William Kirkpatrick, M.B., Ch.B.Glasg., F.R.F.P.S.Glasg., Medical Officer, Dykebar Hospital for Insane Soldiers, Paisley; 2, Woodside Crescent, Glasgow.
1912. Annandale, James Scott, M.B., Ch.B.Aberd., D.P.M., Senior Assistant Physician, Royal Hospital, Aberdeen.
1912. Apthorp, Frederick William, M.R.C.S.Eng., L.R.C.P.Edin., M.P.C., "Mulgrave," Church Road, Burgess Hill, Sussex.
1904. Archdale, Mervyn Alex., M.B., B.S.Durh., D.P.M., Medical Superintendent, Sunderland Borough Mental Hospital, Ryhope.
1905. Archdall, Mervyn Thomas, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., L.S.A.Lond., St. Denys, New Milton, Hants.
1918. Archibald, Alexander John, M.B., Ch.B.Glasg., 245, Langlands Road, Govan, Glasgow.
1918. Archibald, Madeline, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., 245, Langlands Road, Govan, Glasgow.
1882. Armstrong-Jones, Sir Robert, C.B.E., D.Sc.Wales, M.D., B.S., F.R.C.P.Lond., F.R.C.S.Eng., F.S.A., J.P., Lord Chancellor's Visitor-in-Lunacy, 9, Bramham Gardens, London, S.W. 5 (and Plas Dinas, Carnarvon, North Wales). (*Gen. Secretary from 1897 to 1906.*) (*PRESIDENT, 1906-7.*) (*Gresham Prof. of Physic.*)
1910. Auden, George Augustus, M.A., M.D., B.Ch.Camb., F.R.C.P.Lond., D.P.H.Camb., F.S.A., School Medical Officer, Education Office, Council House, Margaret Street, Birmingham.

1891. **Aveline**, Henry Talbot Sydney, M.D.Durh., M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, Somerset and Bath County Asylum, Cotford, near Taunton. (*Hon. Sec. for S.W. Division, 1905-11.*)
1922. **Back**, Frederick, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, South Yorkshire Mental Hospital, Sheffield.
1909. **Bain**, John, M.A., M.B., B.Ch.Glasg., Medical Superintendent, Derby Borough Mental Hospital, Rowditch.
1913. **Bainbridge**, Charles Frederick, M.B., Ch.B.Edin., Assistant Medical Officer, Devon County Mental Hospital, Exminster.
1906. **Baird**, Harvey, M.D., Ch.B.Edin., Periteau, Winchelsea, Sussex.
1923. **Baker**, Geoffrey Thomas, M.C., L.M.S.S.A., Assistant Medical Officer, Kent County Mental Hospital, Chartham Down, near Canterbury.
1878. **Baker**, Hy. Morton, M.B., C.M.Edin., 65, Cole Park Road, Twickenham.
1922. **Banbury**, Percy, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Banstead Mental Hospital, Sutton, Surrey.
1922. **Barclay**, Rachel Mary, M.A., M.D., Dipl. Psych. Edin., 2, W. Cross-causeway, Edinburgh.
1904. **Barham**, Guy Foster, M.A., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Claybury Mental Hospital, Woodford Bridge, Essex.
1919. **Barkas**, Mary Rushton, M.Sc.N.Z., M.D., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, The Maudsley Hospital, Denmark Hill, S.E. 5 ; 46, Connaught Street, W. 2.
1923. **Barnes**, Francis Gregory Lawson, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, London County Mental Hospital, Colney Hatch, New Southgate, N. 11.
1910. **Bartlett**, George Norton, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, County Mental Hospital, Mickleover, Derby. (*Secretary South-Western Division, 1916-22.*)
1923. **Barton**, Michael, L.R.C.P.&S.Irel., Assistant Medical Officer, Grangegorman District Mental Hospital, Dublin.
1901. **Baskin**, J. Lougheed, M.D.Bru.x., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., F.R.I.P.H., c/o Messrs. Glyn Mills & Co., 3, Whitehall Place, S.W. 1.
1902. **Baugh**, Leonard Dieckmann Hamilton, M.B., Ch.B.Edin., The Pleasaunce, York.
1874. **Beach**, Fletcher, M.B., F.R.C.P.Lond., 5, De Crespigny Park, Denmark Hill, S.E. 5. (*Secretary Parliamentary Committee, 1896-1906. General Secretary, 1889-1896. PRESIDENT, 1900-01.*)
1892. **Beadles**, Cecil F., M.R.C.S., L.R.C.P.Lond., Gresham House, Egham Hill, Egham.
1921. **Beaton**, Thomas, O.B.E., M.D., B.S., M.R.C.S., M.R.C.P.Lond., Senior Assistant Physician, Bethlem Royal Hospital, London, S.E. 1. (Lect. on Ment. Dis., Bethlem Royal Hospital.)
1913. **Bedford**, Percy William Page, M.D., Ch.B., Dipl. Psych. Edin., Assistant Medical Officer, West Riding Asylum, Wakefield.
1909. **Beeley**, Arthur, M.Sc.Leeds, M.D., B.S., M.R.C.S., L.R.C.P.Lond., D.P.H., Assistant Medical Officer, E. Sussex Educational Committee, Windybank, King Henry's Road, Lewes.
1922. **Bell**, Andrew Allan, M.B., Ch.B.Glasg., Pathologist and Assistant Medical Officer, Hawkhead Mental Hospital, Cardonald, N.B.
1914. **Bennett**, James Wodderspoon, M.R.C.S., L.R.C.P.Lond., Marsden, Babbacombe Road, Torquay.
1914. **Benson**, John Robinson, F.R.C.S., L.R.C.P.Lond., Resident Physician, Fiddington House, Market Lavington, Wilts, and Laverstock House, Salisbury.
1899. **Beresford**, Edwyn H., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Tooting Bec Mental Hospital, Tooting, London, S.W. 17.
1922. **Berkeley-Hill**, Owen A. R., M.D., B.Ch.Oxon., M.R.C.S.Eng., *Major I.M.S.*, Medical Superintendent, Mental Hospital for Europeans, Ranchi, Bihar and Orissa, India.

1912. Berncastle, Herbert Melbourne, Ph.D.U.S.A., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Croydon Mental Hospital, Warlingham, Surrey.
1920. Birch, William Somerset, M.C., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Jamaica Mental Asylum, Kingston, Jamaica.
1894. Blachford, James Vincent, C.B.E., M.D., B.S.Durh., M.R.C.S., L.R.C.P.Lond., M.P.C., Kingsdown House, Box, Wilts.
1898. Blair, David, M.A., M.D., C.M.Glasg., Deputy Medical Superintendent, County Mental Hospital, Lancaster.
1919. Blake, Stanley, L.R.C.P.&S.Irel., Assistant Medical Officer, Portrane Asylum, Donabate, Ireland.
1918. Blandford, Walter Folliott, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Devonshire Club, S.W. 1.
1904. Bodvel-Roberts, Hugh Frank, M.A.Camb., M.R.C.S., L.R.C.P.Lond., L.S.A., Senior Assistant Medical Officer, Napsbury Mental Hospital, near St. Albans, Herts.
1920. Boland, James Joseph, M.B., B.Ch.N.U.I., Assistant Medical Officer, House of St. John of God, Stillorgan, co. Dublin.
1900. Bolton, Joseph Shaw, D.Sc., M.D., B.S., F.R.C.P.Lond., Medical Superintendent, West Riding Asylum, Wakefield. (Prof. of Ment. Dis., Univ. of Leeds.)
1892. Bond, Charles Hubert, C.B.E., D.Sc., M.D., C.M.Edin., F.R.C.P.Lond., M.P.C., Commissioner of the Board of Control, 66, Victoria Street, London, S.W. 1. (*Hon. General Secretary*, 1906-12.) (**PRESIDENT**, 1921-22.)
1922. Bostock, John, M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Medical Officer, The Mental Hospital, Callan Park, Sydney, N.S.W.
1920. Bowen, Tudor David John, M.R.C.S., L.R.C.P.Lond., Cae Cob, St. Mellons, near Cardiff.
1918. Bower, Cedric William, L.M.S.S.A.Lond., Joint Medical Officer, Springfield House, near Bedford.
1877. Bower, David, M.D., C.M.Aberd., L.R.C.P.&S.Glasg., Springfield House, Bedford. (*Chairman, Parliamentary Committee*, 1907-1910.)
1917. Bowie, Edgar Ormond, L.A.H., D.P.H.Dubl., Assistant Medical Superintendent, Stretton House, Shropshire.
1900. Bowles, Alfred, M.R.C.S., L.R.C.P.Lond., Park View, 2, Lascelles Terrace, Eastbourne.
1896. Boycott, Arthur N., M.D., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Herts County Mental Hospital, Hill End, St. Albans, Herts. (*Hon. Sec. for S.E. Division*, 1900-05.)
1898. Boyle, A. Helen A., M.D.Bru.x., L.R.C.P.&S.Edin., 9, The Drive, Hove, Brighton.
1922. Bramwell, Edwin, M.D., F.R.C.P.Edin. & Lond., F.R.S.Edin., Physician to the Royal Infirmary, Edinburgh, 23, Drumsheugh Gardens, Edinburgh. (Prof. of Clin. Med., Univ. of Edinburgh.)
1911. Brander, John, M.B., C.B.Edin., D.P.M., Deputy Medical Superintendent, London County Mental Hospital, Bexley, Kent.
1919. Branthwaite, Robert Welsh, C.B., M.D.Bru.x., M.R.C.S., L.R.C.P.Lond., D.P.H., Commissioner of the Board of Control, 66, Victoria Street, London, S.W. 1.
1922. Brock, Arthur John, M.D., Ch.B.Edin., 8, Rothesay Place, Edinburgh.
1924. Brown, Basil William, M.B., B.S.Lond., D.P.M., The Priory, Roehampton, S.W. 1.
1924. Brown, George, M.B., B.Ch., Assistant Medical Officer, South Yorkshire Mental Hospital, Sheffield.
1905. Brown, Harry Egerton, M.D., Ch.B.Glasg., M.P.C., c/o Digby S. Brown, 116, Hope Street, Glasgow.
1923. Brown, Malcolm, M.B., Ch.B.Glasg., Assistant Medical Officer and Pathologist, Gartloch Mental Hospital, Gartcosh, N.B.
1908. Brown, R. Dods, M.D., Ch.B., F.R.C.P.Edin., Dipl. Psych., D.P.H., Medical Superintendent, The Royal Asylum, Aberdeen.

1912. Brown, William, M.D., C.M.Glasg., M.P.C., Medical Officer to Stoke Park Colony; 1, Manor Road, Fishponds, Bristol.
1916. Brown, William, D.Sc.Lond., M.A., M.D., B.Ch.Oxon., Wilde Reader in Mental Philosophy, Univ. Oxford; 88, Harley Street, London, W. 1.
1917. Bruce, Alexander Ninian, D.Sc., M.D., F.R.C.P.Edin., 8, Ainslie Place, Edinburgh. (Lect. on Neurology, Univ. of Edin.)
1893. Bruce, Lewis C., M.C., M.D., F.R.C.P.Edin., M.P.C., Medical Superintendent, District Asylum, Druid Park, Murthly, N.B. (*Co-Editor of Journal*, 1911-1916; *Hon. Sec. for Scottish Division*, 1901-1907.)
1913. Brunton, George Llewellyn, M.D., Ch.B.Edin., Medical Superintendent, Nottingham City Mental Hospital, Mapperley Hill.
1920. Bryce, William Henderson, M.B., C.M.Edin., Resident Physician, Kenlaw House, Colinsburgh, Fife.
1912. Buchanan, William Murdoch, M.B., Ch.B.Glasg., Medical Superintendent, Kirklands Asylum, Bothwell, Lanarkshire. (*Hon. Sec. for Scottish Division from 1920.*)
1923. Buckley, Winifred Finimore, O.B.E., M.R.C.S., L.R.C.P.Lond., 5, Brunswick Place, Hove.
1912. Burke, Joseph Dominick Gabriel, M.B., B.Ch.R.U.I., Senior Assistant Medical Officer, St. Audry's Hospital, Melton, Suffolk.
1924. Bushe, Charles Kendal, O.B.E., B.A., M.D.Dubl., Surgeon-Commander in Charge, Royal Naval Hospital, Great Yarmouth.
1921. Butcher, Walter Herbert, M.A., M.B., B.Ch.Oxon., M.R.C.S., L.R.C.P.Lond.; Manor Cottage, Morton-Sub-Habdon, Somerset.
1921. Buzzard, Edward Farquhar, M.A., M.D.Oxon., F.R.C.P.Lond., Physician to St. Thomas's Hospital and to the National Hospital for the Paralysed, Queen Square, W.C.; 78, Wimpole Street, London, W. 1.
1921. Caldicott, Charles Holt, M.B.E., M.B., M.R.C.S., L.R.C.P.Lond., Grantbourne, Chobham, Surrey.
1924. Calwell, William, O.B.E., M.A., M.D., M.Ch.R.U.I., Consulting Visitor in Lunacy to the Lord Chief Justice of Northern Ireland, 6, College Gardens, Belfast.
1894. Campbell, Alfred Walter, M.D., C.M.Edin., M.P.C., Macquarie Chambers, 183, Macquarie Street, Sydney, New South Wales.
1909. Campbell, Donald Graham, M.B., C.M.Edin., F.S.A.Scotl., Medical Officer, District Asylum, "Auchinellan," 12, Reidhaven Street, Elgin.
1914. Campbell, Finlay Stewart, M.D., C.M.Glasg., D.C.M.S. Ministry of Pensions, 20, Queen's Terrace, Ayr, Scotland.
1897. Campbell, Robert Brown, M.D., C.M., F.R.C.P.Edin., Medical Superintendent, Stirling District Asylum, Larbert. (*Secretary for Scottish Division*, 1910-20.)
1905. Carre, Henry, L.R.C.P.&S.Irel., Medical Superintendent, Woodilee Mental Hospital, Lenzie, Glasgow.
1891. Carswell, John, F.R.F.P.S.Glasg., L.R.C.P.Edin., J.P., 18, Harley Street, W. 1.
1874. Cassidy, D. M., D.Sc.Edin., M.D., C.M.McGill, F.R.C.S.Edin., Medical Superintendent, County Mental Hospital, Lancaster.
1922. Casson, Elizabeth, M.B., Ch.B.Bristol, D.P.M., Assistant Medical Officer, Holloway Sanatorium, Virginia Water, Surrey.
1888. Chambers, James, M.A., M.D.R.U.I., M.P.C., The Priory, Roehampton, London, S.W. 15. (*Co-Editor of Journal*, 1905-1914, *Assistant Editor*, 1900-05.) (*PRESIDENT*, 1913-14.) (*Treasurer since 1917.*) (Lect. on Ment. Dis., Middlesex Hosp.)
1911. Chambers, Walter Duncan, M.A., M.D., Ch.B.Edin., M.P.C., Physician Superintendent, James Murray's Royal Asylum; Murray House, Perth.
1923. Chevens, Leslie Charles Frederick, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Cheshire County Mental Hospital, Parkside, Macclesfield.
1917. Chisholm, Percy, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Queen Mary Hospital, Hammersprings, New Zealand.

1907. Chislett, Charles Game Angus, M.B., Ch.B.Glasg., F.R.F.P.S.Glasg., Superintendent, Stoneyetts, Chryston, Lanark.
1921. Cholmeley, Mountague Adye, M.R.C.S., L.R.C.P.Lond., D.P.M., Ministry of Pensions Hospital, Maghull, nr. Liverpool.
1880. Christie, Joseph William Stirling, L.R.C.P.&S.Edin., 21, St. Matthew's Gardens, St. Leonards-on-Sea.
1922. Chuckerbutty, Sites Chunder, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Major I.M.S., Medical Superintendent, European Mental Hospital, Kanki (Ranchi), India; c/o Messrs. Grindlay & Co., 11, Hastings Street, Calcutta, India.
1920. Clark, R. M., M.B., C.M.Edin., Medical Superintendent, County Mental Hospital, Whittingham, Preston.
1907. Clarke, Geoffrey, M.D.Lond., Medical Superintendent, London County Mental Hospital, Bexley, Kent.
1907. Clarkson, Robert Durward, B.Sc., M.D., C.M., F.R.C.P.Edin. (Medical Officer, Scottish National Institute for the Education of Imbecile Children), The Park, Larbert, Stirlingshire.
1892. Cole, Robert Henry, M.D., F.R.C.P.Lond., 25, Upper Berkeley Street, London, W. 1. (*Secretary of Parliamentary Committees, 1912-21, Chairman since 1921.*) (Lect. on Ment. Dis., St. Mary's Hosp.)
1900. Cole, Sydney John, M.A., M.D., B.Ch.Oxon., Medical Superintendent, Wilts County Asylum, Devizes.
1906. Collier, Walter Edgar, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Kent County Mental Hospital, Barming Heath, Maidstone.
1903. Collins, Michael Abdy, O.B.E., M.D., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Kent County Mental Hospital, Chartham Downs. (*Hon. General Secretary, 1912-18.*)
1910. Conlon, Thomas Peter, L.R.C.P.&S.Irel., Resident Medical Superintendent, District Asylum, Monaghan.
1921. Connell, Ernest Henry, M.B., Ch.B.Edin., 7, Greenhill Gardens, Edinburgh.
1920. Connell, O. G., M.C., L.R.C.P.&S.Irel., Medical Superintendent, Norfolk County Mental Hospital, Thorpe, Norwich.
1914. Connolly, Victor Lindley, M.C., M.B., B.Ch.Belf., D.P.M., Deputy Medical Superintendent, West Park Mental Hospital, Epsom.
1910. Coombes, Percival Charles, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Surrey County Mental Hospital, Netherne, near Coulsdon.
1921. Cooper, Alexander, M.A., M.B., Ch.B.Aberd., Park View, Cults, Aberdeenshire.
1903. Cormac, Harry Dove, M.B., M.S.Madras, D.P.M., Medical Superintendent, Cheshire Mental Hospital, Parkside House, Macclesfield.
1891. Corner, Harry, M.D.Lond., M.R.C.S., L.R.C.P.Lond., M.P.C., Brook House, Southgate, N. 14.
1917. Costello, Christopher, M.B., B.Ch.N.U.I., Assistant Medical Officer, Graingegorman Mental Hospital, Donabate, co. Dublin.
1897. Cotton, William, M.A., M.D.Edin., D.P.H., M.P.C., 231, Gloucester Road, Bishopston, Bristol.
1910. Coupland, William Henry, L.R.C.S.&P.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Royal Albert Institution; Albert House, Haverbreaks, Lancaster.
1913. Court, Edward Percy, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Derby Borough Mental Hospital, Rowditch.
1893. Cowen, Thomas Philip, M.D., B.S., M.R.C.S., L.R.C.P.Lond., 53, Westwood Road, Southampton.
1911. Cox, Donald Maxwell, M.R.C.S., L.R.C.P.Lond., County and City Mental Hospital, Burghill, Hereford.
1918. Cox, The Rt. Hon. Michael Francis, LL.D., M.D.R.U.I., F.R.C.P.Irel., Physician, St. Vincent's Hospital, Dublin; 26, Merrion Square, Dublin.
1924. Craig, Alexander, M.B., Ch.B.Aberd., Assistant Physician, Royal Mental Hospital, Aberdeen.

1893. Craig, Sir Maurice, *C.B.E.*, M.A., M.D., B.Ch.Camb., F.R.C.P.Lond., M.P.C., 87, Harley Street, London, W. 1. (*Hon. Secretary of Educational Committee*, 1905-8; *Chairman of Educational Committee*, 1912-19.) (Lect. on Psychol. Med., Guy's Hosp.)
1924. Craig, Roy Neville, M.D.Durh., M.R.C.S., L.R.C.P.Lond., D.P.M., Heath Court, Barton Road, Torquay.
1923. Craigie, James, M.B., Ch.B.St. And., Assistant Medical Officer, Murray Royal, Perth.
1897. Cribb, Harry Gifford, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Durham County Mental Hospital, Winterton, Ferryhill.
1911. Crichlow, Charles Adolphus, M.B., Ch.B.Glasg., Senior Assistant Medical Officer, Bangour Village, West Lothian.
1917. Crockett, James, M.D.Edin., D.P.H., Medical Superintendent, Colony of Mercy for Epileptics, Consumption Sanatoria of Scotland, Craigielea, Bridge of Weir.
1915. Crosthwaite, Frederick Douglas, M.B., Ch.B.Edin., D.P.H., Mental Hospital, Queenstown, Cape Province, South Africa.
1923. Crow, Norah Annie, M.A.Edin., M.D., B.S.Lond., 2, Pembroke Crescent, Hove, Sussex.
1919. Cuthbert, James Harvey, M.B., Ch.B.Edin., Senior Assistant Medical Officer, West Ham Mental Hospital, 63, Eastwood Road, Goodmayes, Essex.
1907. Daniel, Alfred Wilson, B.A., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Hanwell Mental Hospital, Southall, Middlesex. (*Secretary of Educational Committee since 1920.*)
1896. Davidson, Andrew, M.D., C.M.Aberd., M.P.C., 221, Macquarie Street, Sydney, N.S.W. (Lect. on Psychol. Med., University of Sydney.)
1922. Davie, Thomas Macnaughton, M.C., M.D., Ch.B.Edin., D.P.M., Barrister-at-Law, 2, Morningside Terrace, Edinburgh.
1921. Davies-Jones, Charles William Saunderson, M.B., Ch.B.Edin., First Assistant Medical Officer, Ashhurst Hospital, Littlemore, Oxford.
1920. Dawson, William Siegfried, M.A., M.D., B.Ch.Oxon., M.R.C.S., M.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, Maudsley Hospital, Denmark Hill, London, S.E. 5.
1922. Dearden, Harold, B.A.Camb., M.R.C.S., L.R.C.P.Lond., 123, Harley Street, London, W. 1.
1901. De Steiger, Adele Isabella, M.D.Lond., Dormansland, Lingfield, Surrey.
1905. Devine, Henry, *O.B.E.*, M.D., B.S., F.R.C.P.Lond., M.R.C.S.Eng., M.P.C., Medical Superintendent, Borough Mental Hospital, Milton, Portsmouth. (*Co-Editor of the Journal since 1920; Assistant Editor*, 1916-20.)
1904. Devon, James, F.R.F.P.S.Glasg., L.R.C.P.&S.Edin., Prison Commissioner for Scotland, 11, Rutland Square, Edinburgh.
1924. Devon, Martha Davidson, L.R.C.P. & S.Edin., L.R.F.P.S.Glasg., Assistant Medical Officer, Stirling District Mental Hospital, Larbert.
1921. Dick, Alexander, M.C., M.B., Ch.B.Glasg., Assistant Medical Officer, Glasgow District Mental Hospital, Woodilee, Lenzie.
1922. Dickson, James, M.C., M.B., Ch.B.Edin., Browne House, Hamsal Road, Southend-on-Sea.
1915. Dillon, Frederick, M.D., Ch.B.Edin., Medical Superintendent, Northumberland House Mental Hospital, Finsbury Park, N. 4; 72, Wimpole Street, London, W. 1.
1909. Dillon, Kathleen, L.R.C.P.&S.Irel., Assistant Medical Officer, District Asylum, Mullingar.
1905. Dixon, J. Francis, M.A., M.D., B.Ch.Dubl., M.P.C., Medical Superintendent, City Mental Hospital, Humberstone, Leicester.
1879. Dodds, William John, D.Sc., M.D., C.M.Edin., 19, Marina Road, Prestwick, Ayrshire.
1892. Donelan, John O'Connor, L.R.C.P.&S.Irel., M.P.C. (Med. Supt., Grangegorman District Mental Hospital, Dublin), St. Dymphna's, North Circular Road, Dublin. (Lect. on Ment. Dis., Univ. of Dublin.)

1910. Downey, Michael Henry, *D.S.O.*, M.B., Ch.B.Melb., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Parkside Asylum Adelaide, South Australia.
1919. Drake-Brockman, Henry George, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, City Mental Hospital, Middlesbrough.
1923. Draper, Arthur Phillip, *M.C.*, M.D., B.Ch.Dubl., *Capt. R.A.M.C.*, Mental Specialist, Southern Command, India; Mental Section, Deolali, India.
1916. Drummond, William Blackley, M.D., C.M., F.R.C.P.Edin., Medical Superintendent, Baldovan Institution, Dundee.
1921. Drury, Kenneth Kirkpatrick, *M.C.*, B.A., M.D., B.Ch.Dubl., Senior Assistant Medical Officer, County Mental Hospital, Stafford; "Swift Brook," Corporation Street, Stafford.
1907. Dryden, Arthur Mitchell, M.B., Ch.B.Edin., Senior Assistant Medical Officer, Woodilee Mental Hospital, Lenzie.
1902. Dudgeon, Herbert Wm., M.D., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Khanka Government Asylum, Egypt.
1899. Dudley, Francis, L.R.C.P.&S.Irel., Medical Superintendent, Cornwall County Asylum, Bodmin.
1922. Duncan, Williams Arthur, M.B., Ch.B.Edin., Assistant Medical Officer, East Sussex County Mental Hospital, Hellingly, Sussex.
1923. Dunne, John, M.B., B.Ch.R.U.I., Assistant Medical Officer, Grange-gorman District Mental Hospital, Dublin.
1922. Dunscombe, Nicholas Dunscombe, M.A., M.B., B.Ch.Cantab., L.M.S.S.A. Lond., F.R.I.P.H., Barrister-at-Law, 14, South Parade, Bath.
1903. Dunston, John Thomas, M.D., B.S.Lond., Commissioner of Mental Disorders and Defective Persons, South Africa, and Medical Superintendent, West Koppies Mental Hospital, Pretoria, South Africa.
1923. Dwyer, Patrick, M.B., B.Ch., R.U.I., Assistant Medical Officer, Grange-gorman District Mental Hospital, Dublin.
1906. Eager, Richard, *O.B.E.*, M.D., Ch.B.Aberd., M.P.C., Medical Superintendent, Devon County Mental Hospital, Exminster.
1891. Earls, James Henry, M.D., M.Ch.R.U.I., L.S.A.Lond., D.P.H., M.P.C., Barrister-at-Law, Fenstanton, Christchurch Road, Streatham Hill, London, S.W. 2.
1921. East, Guy Roland, M.D., B.S., B.Hy.Durh., D.P.H., Medical Superintendent, Northumberland County Mental Hospital, Collingwood, Morpeth.
1907. East, Wm. Norwood, M.D., M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Inspector, H.M. Prisons (England and Wales), Prison Commission, Home Office, Whitehall, S.W. 1.
1895. Easterbrook, Charles C., M.A., M.D., F.R.C.P.Edin., M.P.C., *J.P.*, Physician Superintendent, Crichton Royal Institution, Dumfries.
1924. Eddison, H. Wilfred, M.A.Cantab., M.R.C.S., L.R.C.P., D.P.M., Assistant Medical Officer, London County Mental Hospital, Banstead, Surrey; 33, Mount Nod Road, Streatham Hill, S.W. 16.
1895. Edgerley, Samuel, M.A., M.D., C.M.Edin., M.P.C., Medical Superintendent, West Riding Asylum, Menston, nr. Leeds.
1897. Edwards, Francis Henry, M.D.Bru.x., M.R.C.S., M.R.C.P.Lond., Medical Superintendent, Camberwell House, London, S.E. 5.
1924. Edwards, Thomas Lloyd, L.R.C.P.&S.Edin., D.P.M., Assistant Medical Officer, County Mental Hospital, Bridgend, Glamorgan.
1919. Eggleston, Henry, M.B., B.S.Durh., M.P.C., The Mental Hospital, Pietermaritzburg, Natal, South Africa; c/o Standard Bank S.A., Adderley Street, Cape Town.
1901. Elgee, Samuel Charles, *O.B.E.*, L.R.C.P.&S.Irel., Medical Superintendent, Cane Hill Mental Hospital, Purley, Surrey.
1923. El Kholy, Mohamed Kamil, M.R.C.S., L.R.C.P.Lond., 2nd Assistant Medical Officer, Abbasia Asylum, Cairo, Egypt.
1889. Elkins, Frank Ashby, M.D., C.M.Edin., M.P.C., Waingroves, 103, Rickmansworth Road, Watford, Herts.

1912. Ellerton, John Frederick Heise, M.D.Brux., M.R.C.S.Eng., L.R.C.P. Edin., Rotherwood, Leamington Spa.
1908. Ellison, Arthur, M.R.C.S., L.R.C.P.Lond., 10, Sholebroke Avenue, Leeds.
1901. Erskine, Wm. J. Adams, M.D., C.M.Edin., Medical Superintendent, County Mental Hospital, Whitecroft, Newport, I. of W.
1895. Eurich, Frederick Wilhelm, M.D., C.M.Edin., Lanshawe Cottage, Ilkley, Yorks. (Professor of Forensic Medicine, University of Leeds.)
1894. Eustace, Henry Marcus, B.A., M.D., B.Ch.Dubl., M.P.C., Medical Superintendent, Hampstead and Highfield Private Asylum, Glasnevin, Dublin.
1909. Eustace, William Neilson, L.R.C.S.&P.Irel., Resident Medical Officer, Glasnevin, Dublin.
1918. Evans, A. Edward, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., D.P.H. Liverp., Inspector, Board of Control, 3, Rotherwick Court, Golders Green, London, N.W. 4.
1891. Ewan, John Alfred, M.A.St.And., M.D., C.M.Edin., M.P.C., Greylees, Godalming, Surrey.
1914. Ewing, Cecil Wilmot, L.R.C.P.&S.Irel., D.P.M., Deputy Medical Superintendent, Storthes Hall Asylum, Kirkburton, nr. Huddersfield.
1894. Farquharson, William F., M.D., C.M.Edin., M.P.C., Medical Superintendent, Cumberland and Westmorland Mental Hospital, Garlands, Carlisle.
1921. Farran-Ridge, Clive, M.B., Ch.M.Syd., D.P.M., Assistant Medical Officer, County Mental Hospital, Stafford.
1907. Farries, John Stothart, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., The Cottage, Hethersgill, Carlisle.
1903. Fennell, Charles Henry, M.A., M.D.Oxon., M.R.C.P.Lond., D.C.M.S., Ministry of Pensions, 27, Cadogan Court, S.W. 3.
1908. Fenton, Henry Felix, M.B., Ch.B.Edin., Medical Superintendent, Worcester County and City Mental Hospital, Powick.
1906. Fielding, Saville James, M.B., B.S.Durh., Medical Superintendent, Bethel Hospital, Norwich.
1889. Finlay, David, M.D., C.M.Glasg., Medical Superintendent, Glamorgan County Asylum, Bridgend.
1906. Firth, Arthur Marcus, M.A., M.D., B.Ch.Edin., Deputy Medical Superintendent, Worcestershire County Mental Hospital, Barnesley Hall, Bromsgrove.
1903. Fitzgerald, Alexis, L.R.C.P.&S.Irel., Medical Superintendent, District Mental Hospital, Waterford.
1908. Fitzgerald, James Francis, L.R.C.P.&S.Irel., Mile House, Cork.
1923. Fitzgerald, John Joseph, M.D.Durh., M.D.Brux., L.R.C.P.Irel., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., L.A.H.Dubl., Mile House, Cork. (Lect. on Clinical Psychiatry, Cork.)
1921. Fleming, Gerald William Thomas Hunter, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Sunderland Mental Hospital, Ryhope, Sunderland.
1904. Fleming, Wilfrid Louis Remi, M.R.C.S., L.R.C.P.Lond., J.P., Suffolk House, Pirbright, Surrey.
1911. Forrester, Archibald Thomas William, M.D., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Warwickshire County Mental Hospital, Hatton.
1916. Forsyth, Charles Wesley, M.D., M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Hollymoor Mental Hospital, Northfield, Birmingham.
1924. Forsythe, Thomas Ronald, M.B., Ch.B., Assistant Medical Officer, Kent County Mental Hospital, Maidstone.
1913. Forward, Ernest Lionel, M.R.C.S., L.R.C.P.Lond., D.C.M.S. Ministry of Pensions, 1, Sanctuary Buildings, London, S.W. 1.
1913. Fothergill, Claude Francis, B.A., M.B., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond.; "Hensol," Chorley Wood, Herts; and 150, Harley Street, W. 1.

1920. Fox, J. Tylor, M.A., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, Lingfield Epileptic Colony; The Homestead, Lingfield, Surrey.
1923. Franklin, Marjorie Ellen, M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Officer, Tavistock Clinic for Functional Nerve Cases; 28, Wimpole Street, Cavendish Square, London, W. 1.
1881. Fraser, Donald, M.D., C.M.Glasg., F.R.F.P.S.Glasg., Connel Cothal, nr. Aberdeen.
1919. Fraser, Kate, B.Sc., M.D., Ch.B.Glasg., D.P.H., Deputy Commissioner, General Board of Control, Scotland; 25, Palmerston Place, Edinburgh.
1921. Fuller, Hugh Hercus Cavendish, M.B., Ch.B.Edin., "Oakdale," Priory Road, Great Malvern.
1902. Fuller, Lawrence Otway, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Three Counties' Mental Hospital, Arlesey, Beds.
1906. Gane, Edward Palmer Steward, M.D.Durh., M.R.C.S., L.R.C.P.Lond., Assistant Medical Superintendent, The Coppice, Nottingham.
1912. Garry, John William, M.B., B.Ch.N.U.I., Assistant Medical Superintendent, Clare County Mental Hospital, Ennis, Ireland.
1922. Gasperine, John Jones, M.R.C.S., L.R.C.P.Lond., D.P.H., D.P.M., Medical Superintendent, Rendlesham Hall, Woodbridge, Suffolk.
1912. Gavin, Lawrence, M.B., Ch.B., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Mullingar District Asylum, Ireland.
1896. Geddes, John William, M.B., C.M.Edin., Medical Superintendent, Borough Mental Hospital, Middlesbrough, Yorks.
1923. Gibson, George Herbert Rae, D.S.O., M.D., F.R.C.P.Edin., L.C.P.S. Brit. Columbia, Deputy Commissioner, General Board of Control, Scotland; 23, Cluny Terrace, Edinburgh.
1919. Gifford, John, B.A.Cape, M.B., Ch.B.Edin., D.P.M., Senior Assistant Medical Officer, Lancashire County Mental Hospital, Rainhill.
1921. Gilfillan, John Aitken, M.D., Ch.B., F.R.F.P.S.Glasg., D.P.M., Medical Superintendent, North Riding Mental Hospital, Clifton, Yorks.
1899. Gilfillan, Samuel James, O.B.E., M.A., M.B., C.M.Edin., Medical Superintendent, Colney Hatch Mental Hospital, New Southgate, London, N. 11.
1923. Gillespie, Isabella Annie, M.B., B.Ch.Edin., Junior Assistant Medical Officer, County Mental Hospital, Upton, Chester.
1921. Gillespie, Robert Dick, M.B., Ch.B.Glasg., Assistant Resident Psychiatrist, Prof. A. Meyer's Clinic, The Johns Hopkins Hospital, Baltimore, Maryland, U.S.A.; 47, Carolside Avenue, Clarkston, Glasgow.
1920. Gillis, Kurt, M.B., Ch.B.Edin., Assistant Physician, Alexandra Hospital, Maitland, S. Africa.
1897. Gilmour, John Rutherford, M.B., C.M., F.R.C.P.Edin., M.P.C., Medical Superintendent, West Riding Asylum, Scalebor Park, Burley-in-Wharfedale, Yorks. (*Hon. Sec. N. and M. Division from 1920.*)
1906. Gilmour, Richard Withers, M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Physician-in-Charge, St. Luke's Hospital, 19, Nottingham Place, W. 1. (Lect. on Psychiatry, Middlesex Hospital, London.)
1923. Golla, Frederick Lucien, M.A., M.B., B.Ch.Oxon., F.R.C.P.Lond., Director of the Laboratory and Pathologist to the London County Mental Hospitals, The Maudsley Hospital, Denmark Hill, S.E. 5; The Dene, Sunninghill.
1897. Good, Thomas Saxty, O.B.E., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Ashhurst Mental Hospital, Littlemore, Oxford.
1889. Goodall, Edwin, C.B.E., M.D., B.S., F.R.C.P.Lond., M.P.C., Medical Superintendent, City Mental Hospital, Cardiff. (PRESIDENT, 1923-24.) (Lect. on Ment. Dis., Welsh Nat. School of Medicine, Cardiff.)
1920. Gordon, George, M.B., Ch.B.Glasg., Neurologist, Ministry of Pensions Hospital, Saltash, Plymouth.

1899. Gordon, James Leslie, M.D., C.M.Aberd., Medical Superintendent, Caterham Mental Hospital, Karaissi, Caterham, Surrey.
1901. Gostwyck, Cecil Hubert Gostwyck, M.B., Ch.B., F.R.C.P.Edin., M.P.C., Dipl. Psych., Assistant Medical Officer, Rampton State Institution, Retford, Notts.
1922. Graham, Gilbert Malise, M.B., Ch.B.Edin., Assistant Medical Officer, Derby Borough Mental Hospital, Rowditch.
1922. Graham, Malcolm Frank Douglass, B.A., M.D.Toronto, M.C.P.&S. Ontario, Specialist at Neurological Clinic, Ministry of Pensions, Brighton; 3, Whitehall Place, London, S.W. 1.
1914. Graham, Norman Bell, M.C., B.A., R.U.I., M.B., B.Ch.Belf., D.P.M., Senior Assistant Medical Officer, Purdysburn Villa Colony, Belfast.
1894. Graham, Samuel, L.R.C.P.Lond., Resident Medical Superintendent, District Asylum, Antrim.
1918. Graham, Samuel John, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Resident Medical Superintendent, Villa Colony Asylum, Purdysburn, Belfast.
1908. Graham, William Shepherd, M.B., B.Ch.R.U.I., Senior Assistant Medical Officer, Somerset and Bath Asylum, Cotford, near Taunton.
1921. Grant, Alastair Robertson, M.B., Ch.B.Aberd., Deputy Medical Superintendent, County Mental Hospital, Whittingham, Preston.
1915. Graves, Thomas Chivers, B.Sc., M.D., B.S.Lond., F.R.C.S.Eng., Medical Superintendent, Rubery Hill Mental Hospital, nr. Birmingham.
1916. Gray, Cyril, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Senior Assistant Medical Officer, Newcastle City Mental Hospital, Gosforth.
1921. Gray, Joseph Anthony Wenceslaus Pereira, M.D.Bruz., M.R.C.S., L.R.C.P.Lond., Visitor of Licensed Houses under Lunacy and Mental Deficiency Acts; 3, Northernhay Place, Exeter.
1909. Greene, Thomas Adrian, L.R.C.S.&P.Irel., J.P., Medical Superintendent, District Asylum, Carlow.
1922. Gregorson, Albert William, M.D., Ch.B., F.R.F.P.S.Glasg., Assistant Physician and Deputy Superintendent, North Middlesex Hospital, Silver Street, Upper Edmonton, N. 18; 9, Aubrey Crescent, Largs, Ayrshire.
1901. Grills, Galbraith Hamilton, M.D., B.Ch., D.M.D.R.U.I., M.P.C., Medical Superintendent, County Mental Hospital, Upton, Chester.
1916. Grimby, Alan Francis, M.A., M.D., B.Ch.Dubl., D.P.M., Assistant Medical Officer, Essex County Mental Hospital, Colchester.
1923. Grossman, Simon, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Cardiff City Mental Hospital, Whitchurch, Glam.
1922. Guppy, Francis Henry, M.C., M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Brighton County Mental Hospital, Haywards Heath, Sussex.
1894. Halsted, Harold Cecil, M.D.Durh., M.R.C.S., L.R.C.P., L.S.A.Lond., Manor Road, Selsey, Sussex.
1920. Hancock, Allen Coulter, M.C., M.R.C.S., L.R.C.P.Lond., D.P.H., D.P.M., Assistant Medical Officer, London County Mental Hospital, Bexley, Kent.
1923. Hardcastle, Douglas Noël, M.R.C.S., L.R.C.P.Lond., D.P.M., Physician, Tavistock Clinic for Functional Nervous Disease; "Elmcroft," Aldenham Road, Bushey, Herts.
1920. Harding, Edward Palmer, L.R.C.P.&S.Irel., Deputy Medical Superintendent, East Riding Mental Hospital, Beverley, Yorks.
1924. Hardy, Herbert William, M.R.C.S., L.R.C.P.Lond., D.P.H., Assistant Medical Officer, Essex County Mental Hospital, Brentwood, Essex; 57, Carver Road, S.E. 24.
1920. Harper, Raymond Sydney, M.R.C.S., L.R.C.P.Lond., F.R.M.S., Neurologist, Psycho-Therapeutic Clinic, Ministry of Pensions, Brighton; 36, First Avenue, Hove, Sussex.

1904. Harper-Smith, George Hastie, M.A., M.D.Camb., M.R.C.S., L.R.C.P. Lond., Medical Superintendent, Brighton County Mental Hospital, Haywards Heath; Galagate, Haywards Heath, Sussex.
1924. Harris, John Stuart, M.B., Ch.B.Edin., Assistant Medical Officer, Hanwell Mental Hospital, Southall, Middlesex.
1898. Harris-Liston, Llewellyn, M.D.Bru., M.R.C.S., L.R.C.P., L.S.A.Lond., F.R.I.P.H., Middleton Hall, Middleton St. George, Co. Durham.
1905. Hart, Bernard, M.D.Lond., M.R.C.S., M.R.C.P.Lond., 94, Harley Street, London, W. 1. (Lect. on Ment. Dis., Univ. Coll. Hosp.)
1886. Harvey, Bagenal Crosbie, L.R.C.P.&S.Edin., L.A.H.Dubl., Resident Medical Superintendent, District Asylum, Clonmel, Ireland.
1892. Haslett, William John Handfield, M.R.C.S., L.R.C.P.Lond., M.P.C., J.P., Resident Medical Superintendent, Halliford House, Upper Halliford, Shepperton.
1922. Hay, Jane Elizabeth, M.B., Ch.B., D.P.H.Edin., Assistant Medical Officer, Storthes Hall Asylum, Kirkburton, near Huddersfield.
1890. Hay, J. F. S., M.B., C.M.Aberd., J.P., Inspector-General of Asylums for New Zealand, Government Buildings, Wellington, New Zealand.
1923. Hayes, Edmund Duncan Tranchell, B.A., M.D., B.Ch.Dubl., D.P.M., Assistant Medical Officer, Croydon Mental Hospital, Warlingham Park, Upper Warlingham.
1924. Hayes, Henry Douglas, M.B., Ch.B.Edin., D.P.M., Assistant Medical Officer, Hanwell Mental Hospital, Southall.
1900. Haynes, Horace Eyres, V.D., M.R.C.S., L.S.A.Lond., J.P., Littleton Hall, Brentwood, Essex.
1920. Haynes, Horace Guy Lankester, M.R.C.S., L.R.C.P.Lond., Littleton Hall, Brentwood, Essex.
1920. Henderson, Cyril John, M.B.Durh., F.R.I.P.H., Assistant Medical Officer, The Royal Albert Institution, Lancaster.
1916. Henderson, David Kennedy, M.D., Ch.B.Edin., F.R.F.P.S.Glasg., Physician Superintendent, Royal Mental Hospital, Gartnavel; 17, Whittingham Drive, Kelvinside, Glasgow. (Lect. on Psychological Medicine, Univ. of Glasgow.)
1905. Henderson, George, M.A., M.B., Ch.B.Edin., 25, Commercial Road, Peckham, London, S.E. 15.
1923. Henderson, Norman Keane, B.A., LL.B.Camb., M.B., Ch.B.Edin., D.P.H., Assistant Medical Officer, Bracebridge Mental Hospital, Lincoln.
1923. Hennessy, James Alphonsus, M.B., Ch.B.Edin., Assistant Medical Officer, Baythorpe Infirmary, Nottingham.
1924. Hensman, Henry Saumarez, L.M.&S.Madras, M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, Government Mental Hospital, Kilpauk, Madras.
1924. Herbert, J. E., M.B., B.Ch., B.A.O.R.U.I., Senior Assistant, District Mental Hospital, Omagh, Ireland.
1914. Hewson, Robert W. Dale, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Senior Medical Officer, Ministry of Pensions Hospital, Kirkburton.
1912. Higson, William Davies, M.B., Ch.B.Liverp., D.P.H., Medical Officer, H.M. Prison; "Eversley," Boxley Road, Maidstone, Kent.
1882. Hill, H. Gardiner, M.R.C.S., L.S.A.Lond., Pentillie, Leopold Road, Wimbledon Park, London, S.W. 19.
1900. Hollander, Bernard, M.D.Freib., M.R.C.S., L.R.C.P.Lond., 57, Wimpole Street, London, W. 1.
1920. Hooper, Reginald Arthur, M.B., B.S.Durh., Senior Assistant Medical Officer, North Riding Mental Hospital, Clifton, Yorks.
1903. Hopkins, Charles Leighton, B.A., M.B., B.Ch.Camb., Medical Superintendent, York City Asylum, Fulford, York.
1914. Horne, Laura Katherine, M.B., Ch.B.Edin., Poole, Dorset.
1918. Horton, Wilfred Winnall, M.D., C.M.Edin., Medical Superintendent, Wye House, Buxton.
1894. Hotchkis, Robert Dunmore, M.A.Glasg., M.D.Durh., M.B., B.S., M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, Renfrew District Asylum, Dykebar, Paisley.

1912. Hughes, Frank Percival, M.B., B.S., M.R.C.S., L.R.C.P.Lond., The Grove, Pinner, Middlesex.
1900. Hughes, Percy T., M.B., C.M.Edin., D.P.H., Medical Superintendent, Worcestershire County Mental Hospital, Barnesley Hall, Bromsgrove. (Lect. on Ment. Dis., Univ. of Birmingham.)
1904. Hughes, William Stanley, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Salop County Mental Hospital, Bicton Heath, Shrewsbury.
1897. Hunter, David, M.A., M.B., B.Ch.Camb., L.S.A.Lond., Medical Superintendent, The Coppice, Nottingham. (*Secretary for S.E. Division, 1910-1913.*)
1912. Hunter, George Yeates Cobb, *I.M.S.*, M.R.C.S., L.R.C.P.Lond., M.P.C., c/o Messrs. Grindlay & Co., 54, Parliament Street, London, S.W. 1.
1904. Hunter, Percy Douglas, M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Three Counties Mental Hospital, Arlesley, Beds.
1911. Hutton, Isabel Emslie, M.D., Ch.B.Edin., Research Worker, Maudsley Hospital, Denmark Hill, S.E. 5 ; 6, Montagu Place, London, W. 1.
1888. Hyslop, Theo. Bulkeley, M.D., C.M., M.R.C.P., L.R.C.S., F.R.S.Edin., M.P.C., 5, Portland Place, London, W. 1.
1915. Ingall, Frank Ernest, F.R.C.S.Eng., L.R.C.P.Lond., D.P.H., Public Health Offices, Clarence Street, Southend-on-Sea.
1908. Inglis, James Pringle Park, M.D., Ch.B.Edin., Senior Assistant Medical Officer, Leavesden Mental Hospital, King's Langley, Herts.
1906. Irwin, Peter Joseph, L.R.C.P.&S.Irel., Medical Superintendent, District Asylum, Limerick.
1923. Jack, Victor William, M.B., Ch.B.Edin., Senior Assistant Medical Officer, Stirling District Mental Hospital, Larbert.
1920. Jackson, John Luke, M.B., B.Ch.Belf., Medical Superintendent, Hants County Mental Hospital, Knowle, Fareham.
1914. James, George William Blomfield, M.C., M.D., B.S., L.S.A.Lond., D.P.M., Resident Medical Officer, The Lawn, Hillingdon, Uxbridge.
1921. Jardine, Maurice Kirkpatrick, M.B., Ch.B.Edin., The Infirmary, Shirley Warren, Southampton.
1922. Jarrett, R. F., L.M.S.S.A.Lond., F.R.F.P.S.Glasg., Medical Officer, H.M.Prison (Boys), Wandsworth Common, S.W. 18 ; 7, Patten Road, Wandsworth Common, S.W. 18.
1908. Jeffrey, Geo. Rutherford, M.D., Ch.B.Glasg., F.R.C.P.Edin., M.P.C., F.R.S.Edin., Medical Superintendent, Bootham Park, York.
1924. Jenkins, Reginald Edward, L.M.S.S.A.Lond., Assistant Medical Officer, Norfolk County Mental Hospital, Thorpe, Norwich.
1893. Johnston, Gerald Herbert, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Brooke House, Upper Clapton, London, E. 5.
1905. Johnston, Thomas Leonard, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., 42, Cambridge Street, Hyde Park, W. 2.
1912. Johnstone, Emma May, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., D.P.M., M.P.C., Doune Cottage, Virginia Water, Surrey.
1878. Johnstone, J. Carlyle, M.D., C.M.Glasg., Melrose.
1903. Johnstone, Thomas, M.D., C.M.Edin., M.R.C.P.Lond., 6, Victoria Avenue, Harrogate.
1924. Joyner, Charles, M.A., M.B., Ch.B.Glasg., Senior Assistant Medical Officer, Derby County Mental Hospital, Mickleover, near Derby.
1879. Kay, Walter Smith, M.D., C.M.Edin., M.R.C.S.Eng., Granby Hotel, Harrogate.
1886. Keay, John, C.B.E., M.D., C.M.Glasg., F.R.C.P.Edin., Medical Superintendent, Bangour Village, Uphall, Linlithgowshire. (*PRESIDENT 1918.*) (Lect. on Ment. Dis., Sch. of Med., Roy. Coll. Edinburgh.)

- 1909. Keith, William Brooks, M.C., M.D., Ch.B.Aberd., M.P.C., Medical Superintendent, St. Audry's Hospital, Melton; Redwald House, Melton, Suffolk. (*Secretary Parliamentary Committee from 1921.*)
- 1924. Kelly, Daniel Lane, L.R.C.P.&S.Irel., Inspector of Lunatics and Senior Medical Inspector, Local Government Department; Ardmore, Killiney, co. Dublin.
- 1907. Keene, George Henry, M.D., B.Ch.Dubl., 14, Palmerston Park, Dublin.
- 1899. Kennedy, Hugh T. J., L.R.C.P.&S.Irel., Medical Superintendent, Ennis-corthy District Asylum, Wexford.
- 1922. Kernohan, James Watson, B.Sc., M.B., B.Ch., D.P.H.Belf., Springhill, Cullybrackey, co. Antrim.
- 1897. Kerr, Hugh, M.A., M.D., C.M.Glasg., Medical Superintendent, Bucks County Mental Hospital, Stone, Aylesbury, Bucks.
- 1902. Kerr, Neil Thomson, M.B., C.M.Edin., J.P., Medical Superintendent, Lanark District Asylum, Hartwood, Lanarkshire.
- 1920. Key, Gordon James, M.B., Ch.B.Aberd., Senior Assistant Physician, Valkenburg Mental Hospital, Observatory, Cape Town, South Africa.
- 1897. Kidd, Harold Andrew, C.B.E., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Graylingwell Mental Hospital, Chichester.
- 1923. Kiddle, Frederick, C.M.G., B.A., M.B., B.Ch.Dubl., Hillcot, Beverley Street, Colchester.
- 1920. Kimber, William Joseph Teil, M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, Herts County Mental Hospital, Hill End, St. Albans.
- 1903. King, Frank Raymond, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Peckham House, Peckham, London, S.E.
- 1923. King, Isabel Falconer, M.B., Ch.B., L.R.C.P.&S.Edin., L.R.F.P.S. Glasg., D.P.M., Senior Assistant Medical Officer, Rubery Hill Mental Hospital, Birmingham.
- 1902. King-Turner, Arthur Charles, M.B., C.M.Edin., Medical Superintendent, The Retreat, Fairford, Gloucestershire.
- 1915. Kirwan, Richard R., M.B., B.Ch.R.U.I., Assistant Medical Officer, West Riding Asylum, Menston, Leeds.
- 1921. Kitchen, John Edward, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Assistant Medical Officer, Storthes Hall Asylum, Kirkburton, near Huddersfield.
- 1919. Knight, Mary Reid, M.A., M.B., Ch.B.Glasg., Assistant Medical Officer, Paisley District Asylum, Riccarton, Paisley, N.B.
- 1903. Kough, Edward Fitzadam, B.A., M.B., B.Ch.Dubl., c/o F. S. Bate, Esq., Bushey Wood Road, Totley Rise, Sheffield.
- 1898. Labey, Julius, M.R.C.S., L.R.C.P., L.S.A.Lond., Medical Superintendent, Public Asylum, Jersey; The Myrtles, St. Saviour's, Jersey.
- 1914. Ladell, Robert George Macdonald, M.B., Ch.B.Vict., Medical Officer, Ministry of Pensions, 395, Coventry Road, Small Heath, Birmingham.
- 1923. Laing, John Kidd Collier, M.B., B.S.Melb., D.P.M., Assistant Medical Officer, Colney Hatch Mental Hospital, New Southgate, N. 11.
- 1902. Langdon-Down, Percival L., M.A., M.B., B.Ch.Camb., Normansfield, Hampton Wick, Middlesex.
- 1896. Langdon-Down, Reginald L., M.A., M.B., B.Ch.Camb., M.R.C.P.Lond., Normansfield, Hampton Wick, Middlesex.
- 1919. Langton, Peregrine Stephen Brackenbury, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Royal Earlswood Institution, Redhill, Surrey.
- 1919. Latham, Oliver, M.B., C.M.Syd., Pathologist, Mental Hospitals Laboratory, Medical School, Newtown University, Sydney, N.S.W.
- 1902. Laval, Evariste, M.B., C.M.Edin., The Guildhall, Westminster, London, S.W. 1.

1898. Lavers, Norman, M.D.Brux., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Bailbrook House, Bath.
1892. Lawless, George Robert, F.R.C.S., L.R.C.P.Irel., Medical Superintendent, District Asylum, Armagh.
1870. Lawrence, Alexander, M.A., M.D., C.M.Aberd., 26, Hough Green, Chester.
1883. Layton, Henry Albert, M.R.C.S., L.R.C.P.Edin., 41, Northwick Terrace, London, N.W. 8.
1923. Lawrie, Macpherson, M.A., M.B., B.Ch.Camb., 34, Dover Street, W. 1.
1915. Leech, Henry Brougham, B.A., M.D., B.Ch.Dubl., Senior Assistant Medical Officer, County Asylum, Hatton, Warwick. (*Acting Registrar 1923-24.*)
1909. Leech, John Frederick Wolseley, B.A., M.D., B.Ch.Dubl., Assistant Medical Officer, Wilts County Asylum, Devizes.
1899. Leeper, Richard R., F.R.C.S., L.R.C.P.Irel., M.P.C., Medical Superintendent, St. Patrick's Hospital, Dublin. (*Hon. Sec. to the Irish Division since 1911.*)
1883. Legge, Richard John, M.D.R.U.I., L.R.C.S.Edin., 8, Bath Place, Cheltenham.
1906. Leggett, William, B.A., M.D., B.Ch.Dubl., Medical Officer, Smithston Asylum, Greenock, Scotland.
1916. Lewis, Edward, L.R.C.P.&S.Edin., F.R.F.P.S.Glasg., Medical Superintendent, Drymma Hall, Skewen, near Neath.
1924. Lewis, John Biddulph Strafford, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Claybury Mental Hospital, Woodford Bridge, Essex.
1920. Lilley, George Austen, M.C., M.A., M.D.Camb., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Hanwell Mental Hospital, Southall, Middlesex.
1908. Litteljohn, Edward Salterne, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Manor Cert. Institution, Epsom.
1921. Livesay, Arthur William Bligh, M.B., C.M., F.R.C.S.Edin., Assistant Medical Officer, Norfolk County Mental Hospital, Thorpe, nr. Norwich.
1920. Lloyd-Dodd, Edward Hamilton Howard, L.R.C.P.&S.Irel., Assistant Medical Officer, Caterham Mental Hospital; The Firs, Coulsdon Road, Caterham, Surrey.
1922. Logan, Frederick Colquhoun, M.B., Ch.B., F.R.F.P.S.Glasg., Deputy Medical Superintendent, County Mental Hospital, Prestwich.
1898. Lord, John Robert, C.B.E., M.B., C.M.Edin., Medical Superintendent, Horton Mental Hospital, Epsom; Horton House, Epsom. (*Co-Editor of Journal since 1911; Assistant Editor of Journal 1900-11; Secretary of the Post-Graduate Study Committee since 1920.*)
1924. Lornie, Peter, M.D., Ch.B.Edin., Senior Assistant Medical Officer, Monmouth County Mental Hospital, Abergavenny, Mon.
1924. Lothian, Douglas, B.M., M.B., Ch.B.Edin., D.P.M., Assistant Physician, Craig House, Morningside Drive, Edinburgh.
1923. Lovell, Clement, M.D., B.S.Lond., Pathologist to the Royal Court of the Bridewell and Bethlem Hospitals; The Laboratory, Bethlem Royal Hospital, Lambeth, S.E. 1.
1906. Lowry, James Arthur, M.D., B.Ch.R.U.I., Medical Superintendent, Surrey County Mental Hospital, Brookwood.
1904. Lyall, C. H. Gibson, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Senior Assistant Medical Officer, City Mental Hospital, Humberstone, Leicester.
1923. Lynch, William Joseph, M.B., B.Ch.N.U.I., Assistant Medical Officer, Cheshire County Mental Hospital, Parkside, Macclesfield.
1923. Lyon, Thomas Malcolm Murray, M.D.Edin., J.P., 46, Palmerston Place, Edinburgh.
1920. McAlister, William Malcolm, M.A., M.B., Ch.B.Edin., Assistant Physician, Royal Hospital, Morningside, Edinburgh.

- 1906. Macarthur, John, M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, District Mental Hospital, Bracebridge Heath, Lincoln.
- 1923. Macaulay, Douglas Jan Otto, M.D., Ch.B.Edin., D.P.M., Chiswick House, Chiswick, W. 4.
- 1880. MacBryan, Henry Crawford, L.R.C.P.&S.Edin., Kingsdown House, Box, Wilts.
- 1923. McCarthy, Owen Felix, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Resident Medical Superintendent, Cork District Mental Hospital, Cork. (Lect. on Mental Dis., Univ. Coll., Cork.)
- 1900. McClintock, John, L.R.C.P.&S.Edin., Resident Medical Superintendent, Grove House, Church Stretton, Salop.
- 1922. McCord, Robert Neal Ballagh, M.B., B.Ch.Belf., Assistant Medical Officer, Surrey County Mental Hospital, Brookwood, Woking, Surrey.
- 1920. McCowan, Peter Knight, M.D., Ch.B.Edin., M.R.C.P.Lond., D.P.M., Assistant Medical Officer, West Park Mental Hospital, Epsom, Surrey.
- 1921. McCutcheon, Archibald Munn, M.B., Ch.B., F.R.F.P.S.Glasg., Resident Medical Officer, Monyhull Colony, King's Heath, Birmingham.
- 1923. Macdonald, Colin, L.R.F.P.S.Glasg., Medical Officer of Kilfinichen; Bunessau, Mull, by Oban, N.B.
- 1901. MacDonald, James Hogg, M.B., Ch.B., F.R.F.P.S.Glasg., Medical Superintendent, Govan District Asylum, Hawkhead, Cardonald, Glasgow. (Lect. on Psychol. Med., Univ. of Glasgow.)
- 1884. MacDonald, P. W., M.D., C.M.Aberd., J.P., Grasmere, Radipole, Weymouth. (*First Hon. Sec. S.W. Div.* 1894-1905). (PRESIDENT, 1907-8.)
- 1911. MacDonald, Ranald, O.B.E., M.D., Ch.B.Edin., D.P.M., Medical Superintendent, Coton Hill Mental Hospital, Stafford.
- 1905. MacDonald, William Fraser, M.B., Ch.B.Edin., M.P.C., 96, Polworth Terrace, Edinburgh.
- 1905. McDougall, Alan, M.D., Ch.B.Vict., M.R.C.S., L.R.C.P.Lond., Medical Director, The David Lewis Colony, Warford, Alderley Edge, Cheshire.
- 1906. McDowall, Colin Francis Frederick, M.D., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Ticehurst House, Ticehurst, Sussex.
- 1870. McDowall, Thomas W., M.D., L.R.C.S.Edin., "Burwood," Wadhurst, Sussex. (PRESIDENT, 1897-8.)
- 1895. Macfarlane, Neil M., M.D., C.M.Aberd., Principal Medical Officer, Maseru, Basutoland, South Africa.
- 1924. Macfarlane, Robert Melvine, M.B., Ch.B.Edin., Assistant Medical Officer, Kent County Mental Hospital, Maidstone.
- 1923. McGarvey, John, M.B., B.Ch.Belf., Deputy Medical Superintendent, Somerset and Bath Mental Hospital, Wells.
- 1922. McGeorge, Margaret Turner, M.B., Ch.B.Glasg., Assistant Medical Officer, Camberwell House, Peckham Road, S.E. 5.
- 1921. McGrath, Mathew Joseph, M.B., B.Ch.R.U.I., D.P.M., Deputy Medical Superintendent, West Riding Asylum, Wakefield; Northcote, Peterson Road, Wakefield, Yorks.
- 1902. McGregor, John, M.B., Ch.B.Edin., Senior Assistant Medical Officer, County Asylum, Bridgend, Glam.
- 1924. McInnes, John, M.B., Ch.B.Glasg., D.P.M., Assistant Medical Officer, London County Mental Hospital, Bexley, Kent.
- 1917. McIver, Colin, J.M.S., M.R.C.S., L.R.C.P.Lond., c/o Messrs. Grindlay & Co., Post Box 93, Bombay, India.
- 1921. McKail, Robert Buchanan Forbes, M.B., Ch.B.Glasg., Senior Assistant Medical Officer, "Calderstones" Certified Institution, Whalley, near Blackburn.
- 1924. Mackay, George William John, M.B., Ch.B.Edin., Assistant Medical Officer, St. Andrew's Hospital, Northampton.

1914. Mackay, Magnus Ross, *M.C., M.B., Ch.B.Edin.*, Newport Borough Mental Hospital, Caerleon, Mon.
1917. Mackay, Norman Douglas, *B.Sc., M.D., Ch.B.Edin., D.P.H.*, Dall-Avon, Aberfeldy, Perthshire.
1891. Mackenzie, Henry James, *M.B., C.M.Edin., M.P.C.*, 9, Belle Vue Terrace, York.
1911. Mackenzie, John Cosserat, *M.B., Ch.B.Edin.*, Assistant Medical Officer, Burntwood Mental Hospital, near Lichfield.
1903. Mackenzie, Theodore Charles, *M.D., Ch.B., F.R.C.P.Edin., M.P.C.*, Medical Superintendent, District Asylum, Inverness.
1921. Mackie, George, *D.S.O., M.D., Ch.B.Edin.*, Thornyhill, Burley-in-Wharfedale.
1924. McLagan, Francis M., *M.B., Ch.B.St.And.*, Assistant Medical Officer, Hanwell Mental Hospital, Southall, Middlesex.
1924. McLaughlin, Francis Leo, *M.B., B.Ch.R.U.I.*, Assistant Medical Officer, Tirconsall Mental Hospital, Letterkenny, Ireland.
1921. Macleod, Neil, *M.B., Ch.B.Edin., D.P.M.*, Assistant Physician, The Retreat, York.
1922. McLuskie, Peter, *M.B., Ch.B.Glasg., D.P.M.*, Assistant Medical Officer, Cane Hill Mental Hospital, Coulsdon, Surrey.
1923. MacNab, Robert Allan, *M.B., Ch.B.Edin.*, Junior Assistant Medical Officer, Holloway Sanatorium, Virginia Water, Surrey.
1904. Macnamara, Eric Danvers, *M.A., M.D., B.Ch.Camb., F.R.C.P.Lond.*, 87, Harley Street, London, W. 1. (Lect. on Psychol. Med., Charing Cross Hosp.)
1910. MacPhail, Hector Duncan, *O.B.E., M.A., M.D., Ch.B.Edin.*, Medical Superintendent, City Mental Hospital, Gosforth, Newcastle-on-Tyne.
1922. Macphail, Iain Ross, *L.R.C.P.&S.Edin., L.R.F.P.S.Glasg.*, Medical Superintendent, Kesteven County Mental Hospital, Greylees, Sleaford, Lincs.
1882. Macphail, Samuel Rutherford, *M.D., C.M.Edin.*, Medical Superintendent, New Saughton Hall Mental Hospital; Linden Lodge, Loanhead, Midlothian.
1901. McRae, G. Douglas, *M.D., C.M., F.R.C.P.Edin., J.P.*, Medical Superintendent, Glengall Hospital; Glengall House, Ayr, N.B. (*Co-Editor of the Journal since 1920; Assistant Editor 1916-20.*)
1894. McWilliam, Alexander, *M.A., M.B., C.M.Aberd.*, Waterval, Odiham, Winchfield, Hants.
1922. McWilliam, William, *M.B., Ch.B.Glasg.*, Senior Assistant Medical Officer, District Asylum, Inverness.
1923. Madill, Joseph Thomas Herbert, *B.A.N.U.I., M.B., B.Ch.Edin., F.R.F.P.S.Glasg., M.P.C.*, Senior Assistant Medical Officer, County Mental Hospital, Chester.
1908. Mapother, Edward, *M.D., B.S.Lond., F.R.C.S.Eng., M.R.C.P.Lond.*, Medical Superintendent, The Maudsley Hospital, Denmark Hill, S.E. 5.
1903. Marnan, John, *B.A., M.B., B.Ch.Dubl.*, Medical Superintendent, County Asylum, Gloucester.
1896. Marr, Hamilton C., *M.D., C.M., F.R.F.P.S.Glasg., M.P.C.*, H.M. Commissioner, General Board of Control for Scotland; 10, Succoth Avenue, Edinburgh. (*Hon. Sec. Scottish Division, 1907-1910.*)
1924. Marshall, Robert, *M.D., F.R.C.P.*, Medical Registrar, Royal Victoria Hospital, Belfast.
1905. Marshall, Robert Macnab, *M.D., Ch.B.Glasg., M.P.C.*, 2, Clifton Place, Glasgow.
1922. Martin, Frederick Robertson, *M.B., Ch.B.Glasg., D.P.M.*, Assistant Medical Officer, Banstead Mental Hospital, Sutton, Surrey.
1896. Martin, James Charles, *L.R.C.S.&P.Irel., J.P.*, Assistant Medical Officer, Mental Hospital, Letterkenny, Donegal.
1907. Martin, Mary Edith, *L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., L.S.A.Lond., M.P.C.*, 11, The Drive, Hove, Sussex.

1914. **Martin**, Samuel Edgar, M.B., B.Ch.Edin., Barrister-at-Law, Medical Superintendent, The Old Manor, Salisbury.
1911. **Martin**, William Lewis, *O.B.E.*, M.A., B.Sc., M.B., C.M.Edin., D.P.H., Dipl. Psych., M.P.C., Certifying Physician in Lunacy, Edinburgh Parish Council, 56, Bruntsfield Place, Edinburgh.
1922. **Martyn**, Pierce Patrick, M.B., B.Ch.R.U.I., Colonial Medical Service, British Honduras, Central America.
1923. **Marwood**, Sydney Francis, M.B., B.S., M.R.C.S., M.R.C.P.Lond., Assistant Medical Officer, South Yorkshire Asylum, Sheffield.
1921. **Masefield**, William Gordon, M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Essex County Mental Hospital, Colchester.
1911. **Mathieson**, James Moir, M.B., Ch.B.Aberd., Assistant Medical Officer, West Riding Asylum, Middlewood Road, Sheffield.
1890. **Menzies**, William F., B.Sc., M.D.Edin., F.R.C.P.Lond., Medical Superintendent, Stafford County Mental Hospital, Cheddleton, near Leek. (PRESIDENT, 1920-21.)
1877. **Merson**, John, M.A., M.D., C.M.Aberd., "Willerby," Brayton Road, Selby.
1910. **Middlemiss**, James Ernest, M.R.C.S., L.R.C.P.Lond., F.R.F.P.S. Glasg., M.P.C., Neurologist and Specialist in Psychotherapy, Ministry of Pensions, Leeds; 131, North Street, Leeds.
1924. **Miller**, Robert Stewart, M.D., Ch.B.Glasg., Director, El Khanka Mental Hospital, Egypt.
1893. **Mills**, John, M.B., B.Ch.R.U.I., D.M.D., Medical Superintendent, District Asylum, Ballinasloe, Ireland.
1923. **Minski**, Louis, M.B., B.S.Durh., Assistant Medical Officer, Bootham Park, York.
1911. **Moll**, Jan. Marius, M.D.Utrecht, L.M.S.S.A.Lond., M.P.C., Box 2587, Johannesburg, South Africa.
1922. **Molony**, Charles Bernard, M.B., Ch.B.N.U.I., Assistant Medical Officer, Limerick Mental District Hospital, Limerick.
1910. **Monnington**, Richard Caldicott, M.D., Ch.B.Edin., D.P.H., D.P.M., Neurologist, Ministry of Pensions, 33, New Street, Salisbury.
1915. **Monrad-Krohn**, G. H., B.A., M.D., B.S.Christiania, M.R.C.S., M.R.C.P.Lond., M.P.C., Rikshospitalet, Christiania, Norway. (Prof. of Medicine, Royal Frederick University.)
1899. **Moore**, William D., M.D., M.Ch.R.U.I., Medical Superintendent, Holloway Sanatorium, Virginia Water, Surrey.
1917. **Morris**, Bedlington Howel, M.B., B.S.Durh., Inspector-General of Hospitals, South Australia; "Tros-y-Parc," Pembroke Street, St. Peter's, Adelaide, S. Australia.
1896. **Morton**, William Britain, M.D., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Wonford House, Exeter.
1896. **Mott**, Sir Frederick W., *K.B.E.*, LL.D.Edin., M.D., B.S., F.R.C.P.Lond., F.R.S., 25, Nottingham Place, Marylebone, London, W. 1. (Lect. on Morbid Psychology, Univ. of Birmingham.) (PRESIDENT-ELECT, 1924-25.)
1896. **Mould**, Gilbert Edward, M.R.C.S., L.R.C.P.Lond., The Grange, Rotherham, Yorks.
1897. **Mould**, Philip G., M.R.C.S., L.R.C.P.Lond., Oaklands, Walmersley, nr. Bury, Lancs.
1914. **Moyes**, John Murray, M.B., Ch.B.Edin., D.P.M., Assistant Superintendent, Northumberland Mental Hospital, Morpeth.
1919. **Mules**, Annie Shortridge, M.R.C.S., L.R.C.P.Lond., House Physician, Devon and Exeter Hospital; Court Hall, Kenton, S. Devon.
1907. **Mules**, Bertha Mary, M.D., B.S.Durh., Court Hall, Kenton, S. Devon.
1911. **Muncaster**, Anna Lilian, M.B., Ch.B.Edin., Valkenburg Mental Hospital, Cape Town, South Africa.
1923. **Murnane**, Helen Mary, M.B., B.Ch.R.U.I., D.P.H., Assistant Medical Officer, Grangegorman District Mental Hospital, Dublin.

1903. Navarra, Norman, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, City of London Mental Hospital, Stone, Dartford.
1910. Neill, Alex. William, M.D., Ch.B.Edin., Physician-Superintendent, Warneford Mental Hospital, Oxford.
1903. Nelis, William F., M.D.Durh., L.R.C.P.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Newport Borough Mental Hospital, Caerleon, Mon.
1920. Nicol, William Drew, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Horton Mental Hospital, Epsom, Surrey.
1923. Nicole, J. Ernest, L.M.S.S.A.Lond., Assistant Medical Officer, County Mental Hospital, Prestwich, Manchester.
1921. Nicoll, James, M.D., C.M.Edin., D.P.H.Lond., Medical Superintendent, Fountain Mental Hospital, Tooting Grove, S.W. 17.
1869. Nicolson, David, C.B., M.D., C.M.Aberd., M.R.C.P.Edin., F.S.A.Scot., Hanley, Park Road, Camberley, Surrey. (PRESIDENT, 1895-6.)
1920. Nix, Sidney, M.D., B.S.Durh., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Deputy Medical Superintendent, Graylingwell Mental Hospital, Chichester.
1922. Noble, Ralph Athelstane, M.B., Ch.M.Syd., D.P.M., Medical Superintendent, Red Cross Hospitals for Nervous Diseases, N.S.W., Australia; "Montrose," 175, Macquarie Street, Sydney, N.S.W., Australia.
1888. Nolan, Michael J., L.R.C.P.&S.Irel., M.P.C., Medical Superintendent, District Asylum, Downpatrick. Consulting Visitor-in-Lunacy to the Lord Chief Justice, N. Ireland, and to the Chief Justice, S. Ireland. [PRESIDENT, 1924-25].
1913. Nolan, James Noel Green, B.A., M.D., B.Ch.Dubl., Deputy Medical Superintendent, East Sussex Mental Hospital, Hellingly.
1909. Norman, Hubert James, M.B., Ch.B., D.P.H.Edin., Assistant Medical Officer, Camberwell House Asylum, Peckham Road, London, S.E. 5; 51, Crystal Palace Park Road, Sydenham, London, S.E. 26.
1923. Noronha, Frank, M.B., C.M.Madras, D.P.M., Superintendent, The Asylum, Avenue Road, Bangalore City, India.
1924. Odum, Doris, M.A.Oxon., B.A.Lond., M.R.C.S., L.R.C.P.Lond., Lady Chichester Hospital, Hove, Sussex.
1903. O'Doherty, Patrick, B.A., M.B., B.Ch.R.U.I., Resident Medical Superintendent, District Mental Hospital, Sligo.
1918. Ogilvie, William Mitchell, M.B., C.M.Aberd., Medical Superintendent, Ipswich Mental Hospital, Ipswich.
1901. Ogilvy, David, B.A., M.D., B.Ch.Dubl., Medical Superintendent, London County Mental Hospital, Long Grove, Epsom.
1911. Oliver, Norman Henry, M.R.C.S., L.R.C.P.Lond., Barrister-at-Law, Medical Superintendent, Ministry of Pensions Hospital, Latchmere, Ham Common, Surrey.
1922. O'Flaherty, Rev. Claude, M.B., Ch.B.Edin., 29, Palmerston Place, Edinburgh.
1920. O'Neill, Arthur, O.B.E., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Napsbury Mental Hospital, nr. St. Albans, Herts.
1924. O'Reilly, James Joseph, M.B., B.Ch.Queen's Univ., Belf., Assistant Medical Officer, Dorset County Mental Hospital, Herrison, Dorchester.
1902. Orr, David, M.D., C.M.Edin., M.P.C., Medical Superintendent, County Mental Hospital, Prestwich.
1910. Orr, James Henry Cubitt, M.D., Ch.B.Edin., Medical Superintendent, Midlothian Asylum, Rosslyn Castle.
1914. Osbourne, John C., M.B., B.Ch.N.U.I., c/o Glyn, Mills & Co., 3, Whitehall Place, S.W. 1.
1890. Oswald, Landel Rose, M.B., C.M.Glasg., M.P.C., c/o The Manse, Thornhill, Dumfriesshire. (Lect. on Ins., Univ. of Glasgow.)

1916. Overbeck-Wright, Alexander William, M.D., Ch.B.Aberd., M.P.C., D.P.H., *I.M.S.*, Superintendent, Asylum House, Agra, U.P., India.
Address : c/o Messrs. King, King & Co., Bombay, India.
1905. Paine, Frederick, M.D.Bru.x., M.R.C.S., M.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Claybury Mental Hospital, Woodford Bridge, Essex.
1923. Pailthorpe, Grace Winifred, M.B., B.S.Durh., 40, Parliament Hill Mansions, Highgate Road, N.W. 5.
1920. Parkin, George Gray, M.B., Ch.B.Vict., Deputy Medical Superintendent, Cheshire County Mental Hospital, Parkside, Macclesfield.
1920. Parnis, Henry William, B.Sc., M.D.Malta, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, Claybury Mental Hospital, Woodford Bridge, Essex.
1898. Pasmore, Edwin Stephen, M.D., M.R.C.P.Lond., Medical Superintendent, Croydon Mental Hospital, Chelsham House, Upper Warlingham.
1916. Patch, Charles James Lodge, M.C., L.R.C.P.&S.Edin., L.R.F.P.S. Glasg., Capt. *I.M.S.*, The Punjab Lunatic Asylum, Lahore, India.
1899. Patrick, John, M.B., Ch.B.R.U.I., Medical Superintendent, District Asylum, Omagh, Ireland.
1907. Peachell, George Ernest, M.D., B.S., M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, Dorset County Mental Hospital, Herrison, Dorchester.
1910. Pearn, Oscar Phillips Napier, M.R.C.S., L.R.C.P., L.S.A.Lond., D.P.M., Deputy Medical Superintendent, Cane Hill Mental Hospital, Coulsdon, Surrey.
1913. Penny, Robert Augustus Greenwood, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Devon County Mental Hospital, Exminster.
1920. Penson, John Frederick, M.A., M.B., B.Ch.Oxon., M.R.C.S., L.R.C.P.Lond., D.P.M., Sunnycroft, Earley, Reading.
1911. Petrie, Alfred Alexander Webster, M.D., M.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Maudsley Hospital, Denmark Hill, London, S.E. 5.
1878. Philipps, Sutherland Rees, M.D., C.M.Q.U.I., F.R.G.S., Mont Estoril, Belle Vue Road, Paignton.
1908. Phillips, John George Porter, M.D., B.S., M.R.C.S., F.R.C.P.Lond., M.P.C., Resident Physician and Superintendent, Bethlem Royal Hospital, Lambeth, London, S.E. 1. (Lect. on Ment. Path., London School of Med. for Women.) (*Secretary of Educational Committee*, 1913-20.)
1910. Phillips, John Robert Parry, O.B.E., M.R.C.S., L.R.C.P.Lond., Northwoods House, Winterbourne, Bristol.
1906. Phillips, Nathaniel Richard, M.D.Bru.x., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Monmouthshire County Asylum, Abergavenny.
1905. Phillips, Norman Routh, M.D.Bru.x., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, St. Andrew's Hospital, Northampton.
1921. Phillips, Philip Gordon, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Ministry of Pensions Neurological Hospital, Oulton Hall, Woodlesford, near Leeds.
1924. Pickworth, Frederick Alfred, B.Sc., M.B., B.S., L.R.C.P., M.R.C.S., A.I.C.(exam.), Ph.C., Pathologist to Joint Board of Research for Mental Diseases, City University of Birmingham; Hollymoor Mental Hospital, Northfield, Birmingham.
1891. Pierce, Bedford, M.D., F.R.C.P.Lond., "Rosewood," Middlecave Road, Malton, Yorks. (*Hon. Secretary, N. and M. Division*, 1900-8.) (*PRESIDENT*, 1919.)
1888. Pietersen, James F. G., M.R.C.S., L.R.C.P.Lond., Ashwood House, Kingswinford, near Dudley, Stafford.
1896. Planck, Charles, M.A.Camb., M.R.C.S., L.R.C.P.Lond., "Pontresina," Perrymount Road, Haywards Heath.
1912. Plummer, Edgar Curnow, M.R.C.S., L.R.C.P.Lond., St. Faith's, Mount Park Road, Ealing, W. 5.

1889. Pope, George Stevens, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Heigham Hall, Norwich.
1913. Potts, William A., M.A.Camb., M.D.Edin.& Birm., M.R.C.S., L.R.C.P. Lond., *Medical Officer to the Birmingham Committee for the Care of the Feeble-minded*, 118, Hagley Road, Birmingham.
1916. Power, Patrick William, L.R.C.P.&S.Irel., Senior Assistant Medical Officer, Upton County Mental Hospital, Upton, Chester.
1923. Power, Thomas Declan, B.A., M.D., B.Ch.Dubl., D.P.H., D.P.M., Assistant Medical Officer, Essex County Mental Hospital, Brentwood, Essex.
1921. Poynder, Ernest George Thornton, M.R.C.S., L.R.C.P.Lond., D.P.M. Assistant Medical Officer, Long Grove Mental Hospital, Epsom.
1908. Prentice, Reginald Wickham, L.M.S.S.A.Lond., Bridge House, Ringwood, Hants.
1918. Prideaux, John Joseph Francis Engledue, M.R.C.S., L.R.C.P.Lond., D.C.M.S. Ministry of Pensions, 1, Sanctuary Buildings, Great Smith Street, S.W. 1.
1894. Rambaut, Daniel F., M.A., M.D., B.Ch.Dubl., Medical Superintendent, St. Andrew's Hospital, Northampton; Priory Cottage, Northampton. (*Registrar since 1924.*)
1889. Raw, Nathan, C.M.G., M.D., B.S., L.S.Sc.Durh., F.R.C.S.Edin., M.R.C.P.Lond., M.P.C., F.R.S.Edin., Lord Chancellor's Visitor; Ashfield, Ashgreen, Loughton, Essex.
1870. Rayner, Henry, M.D.Aberd., M.R.C.P.Edin., Upper Terrace House, Hampstead, London, N.W. 3. (PRESIDENT, 1884-85.) (*General Secretary, 1877-89.*) (*Co-Editor of Journal, 1895-1911.*)
1913. Read, Charles Stanford, M.D., M.R.C.S., L.R.C.P.Lond., 11, Weymouth Street, London, W. 1.
1920. Read, Walter Wolfe, M.D.Bru.x., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Berkshire County Mental Hospital, Wallingford, Berks.
1921. Reardon, Arthur Francis, L.M.S.S.A.Lond., Medical Superintendent, County Mental Hospital, Cambridge.
1899. Redington, John Murray, F.R.C.S., L.R.C.P.Irel., The Bungalow, Rockbarton, Salthill, Galway.
1924. Reed, John Charles Groscoret, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, The Old Manor, Salisbury.
1911. Reeve, Ernest Frederick, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, County Mental Hospital, Rainhill.
1911. Reid, Daniel McKinley, M.D., Ch.B., F.R.F.P.S.Glasg., Medical Superintendent, City Mental Hospital, Exeter.
1924. Reid, James, L.R.C.P.&S.Edin., Assistant Medical Officer, Hereford County Mental Hospital, Burghill, Hereford.
1910. Reid, William, M.A.St.And., M.B., Ch.B.Edin., Medical Superintendent, Burntwood Mental Hospital, near Lichfield.
1923. Retallack-Moloney, Herbert Thomas, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Claybury Mental Hospital, Woodford Bridge, Essex.
1899. Rice, David, M.D.Bru.x., M.R.C.S., L.R.C.P.Lond., D.P.H., Medical Superintendent, City Mental Hospital, Hillesdon, Norwich.
1897. Richards, William John, M.A., M.B., C.M., F.R.F.P.S.Glasg., Medical Superintendent, South General Hospital; Merryflats House, Govan, Glasgow.
1899. Richards, John, M.B., C.M., F.R.C.S.Edin., Medical Superintendent, Joint Counties Mental Hospital, Carmarthen.
1922. Riches, Reginald George, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Hanwell Mental Hospital, Southall, Middlesex.
1920. Rickman, John, M.A., M.B., B.Ch.Camb., Clinical Assistant, Mental Out-Patients, St. Thomas's Hospital; 26, Devonshire Place, W. 1.
1911. Robarts, Henry Howard, M.D., Ch.B.Edin., D.P.H., Medical Officer, District Asylum; Ennerdale, Haddington, Scotland.

1922. Robb, John Robert Beith, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Assistant Physician, Gartloch Mental Hospital, Gartcosh, N.B.
1921. Roberts, Edward Douglas Thomas, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Herts County Mental Hospital, Hill End, St. Albans.
1903. Roberts, Norcliffe, *O.B.E.*, M.D., B.S.Durh., D.P.M., Medical Superintendent, West Park Mental Hospital, Epsom, Surrey.
1887. Robertson, Geo. M., M.D., C.M., F.R.C.P.Edin., M.P.C., Physician-Superintendent, Royal Hospital, Morningside, Edinburgh; Tipperlin House, Morningside Place, Edinburgh. (Prof. of Psychiatry, Univ. of Edinburgh.) (PRESIDENT, 1922-23.)
1908. Robertson, George Dunlop, L.R.C.S.&P.Edin., L.R.F.P.S.Glasg., Dipl. Psych., Senior Assistant Physician, District Asylum, Hartwood, Lanark.
1920. Robinson, William, M.D., Ch.B.Leeds, D.P.M., Medical Superintendent, Essex County Mental Hospital, Brentwood.
1911. Robson, Capt. Hubert Alan Hirst, M.R.C.S., L.R.C.P.Lond., Punjab Asylum, India.
1923. Rodd, Arthur, M.R.C.S., L.R.C.P.Lond., Capt. R.A.M.C., c/o Messrs. Glyn, Mills & Co., 3, Whitehall Place, S.W. 1.
1922. Rodger, Kenneth Mann, M.B., Ch.B.Glasg., D.P.M., Assistant Medical Officer, West Riding Asylum, Menston.
1914. Rodger, Murdoch Mann, M.D., Ch.B.Glasg. (The Anchorage, Bothwell, Scotland); Lunatic Asylum, Abbassia, Cairo, Egypt.
1908. Rodgers, Frederick Millar, *O.B.E.*, M.D., Ch.B.Vict., D.P.H., Medical Superintendent, County Mental Hospital, Winwick.
1895. Rolleston, Lancelot William, *C.B.E.*, M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Napsbury Mental Hospital, nr. St. Albans, Herts.
1922. Rollins, Ernest Edward, B.A., M.B., B.Ch.Dubl., 38, Warwick Road, Earl's Court, S.W. 5.
1920. Roscrow, Cecil Beaumont, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, City Mental Hospital, Winson Green, Birmingham. (Lect. and Exam. Ment. Dis., Birmingham Univ.)
1924. Rose, Edward Snow, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Claybury Mental Hospital, Woodford Bridge, Essex.
1888. Ross, Chisholm, M.D.Syd., M.B., C.M.Edin., 225, Macquarie Street, Sydney, New South Wales.
1910. Ross, Donald, M.B., Ch.B.Edin., M.P.C., Medical Superintendent, Argyll and Bute Asylum; Tigh-ma-Linne, Lochgilphead, Argyll.
1923. Ross, Thomas Arthur, M.D., C.M., F.R.C.P.Edin., Medical Director, Cassel Hospital for Functional Nervous Disorders, Swaylands, Penshurst, Kent.
1899. Rotherham, Arthur, M.A., M.B., B.Ch.Camb., Commissioner, Board of Control, 66, Victoria Street, Westminster, London, S.W. 1; Elm House, Marshall Road, Farncombe, Surrey.
1902. Rows, Richard Gundry, *C.B.E.*, D.Sc.Manch., M.D., M.R.C.S., L.R.C.P.Lond., County Mental Hospital, Prestwich, Manchester.
1922. Roy, John Allen Chisholm, M.B., Ch.B.Vict., Medical Superintendent, Cheadle Royal, Cheadle, Cheshire.
1924. Rudolf, Gerald de Montjoie, M.R.C.S., L.R.C.P.Lond., D.P.H., D.P.M., Assistant Medical Officer, Claybury Mental Hospital, Woodford Bridge, Essex; North House, Claybury.
1877. Russell, Arthur Pickston, M.B., C.M., M.R.C.P.Edin., Medical Superintendent, The Lawn, Lincoln.
1923. Russell, John, M.B., Ch.B.Glasg., Assistant Medical Officer, West Riding Mental Hospital, Menston, nr. Leeds.
1912. Russell, John Ivison, M.B., Ch.B., F.R.F.P.S.Glasg., D.P.M., M.P.C., Deputy Medical Superintendent, North Riding Asylum, Clifton.
1915. Russell, William, *M.C.*, M.D., Ch.B.Edin., Dip.Psych., D.T.M., Physician Superintendent, Training School, Potchefstroom, South Africa.
1912. Rutherford, Cecil, B.A., M.B., B.Ch.Dubl., Assistant Medical Officer, Holloway Sanatorium, Virginia Water, Surrey.

1907. Rutherford, Henry Richard Charles, F.R.C.S., L.R.C.P.Irel., D.P.H., St. Patrick's Hospital, James's St., Dublin.
1896. Rutherford, James Mair, M.B., C.M., F.R.C.P.Edin., M.P.C., Brislington House, Bristol.
1922. Ruthven, Morton Wood, M.B., Ch.B.Edin., D.T.M., Assistant Medical Officer, Banstead Mental Hospital, Sutton, Surrey.
1902. * Sall, Ernest Frederick, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, City Mental Hospital, Canterbury.
1924. Samuel, Edward Jeffrey, M.B., B.S.Lond., Senior Assistant Medical Officer, Peckham House Mental Hospital, Peckham, S.E. 15.
1908. Samuels, William Frederick, L.M.&S.Dubl., Medical Superintendent, Central Asylum, S. Dymphna's, Tanjong, Rambutan, F.M.S.
1923. Sang, Janet Adeline Agnes, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Assistant Medical Officer, County Mental Hospital, Prestwich, Manchester.
1894. Sankey, Edward Hugh Octavius, M.A., M.B., B.Ch.Camb., Resident Medical Licensee, Boreatton Park, Baschurch, Salop.
1906. Scanlan, John James, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., D.P.H., c/o Glyn Mills & Co., 44, Charing Cross, S.W. 1.
1911. Scroope, Gervase Wm. Mavy, M.B., B.Ch.Dubl., Assistant Medical Officer, Central Asylum, Dundrum, co. Dublin.
1880. Seccombe, George Samuel, M.R.C.S., L.R.C.P.Lond., c/o Lloyds Bank, Threadneedle Street, London, E.C. 3.
1912. Sergeant, John Noel, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Newlands House, Tooting Bec Common, London, S.W. 17. (*Secretary South-Eastern Division since 1913.*)
1921. Severn, Adolphe Gladstone Millott, B.A., M.D.Bru.x., M.R.C.S., L.R.C.P.Lond., D.P.H., F.C.S., F.R.I.P.H., Barrister-at-Law, Medical Officer of Health, Sanitary Department, Hong Kong.
1901. Shaw, Benjamin Henry, M.D., B.Ch.R.U.I., Medical Superintendent, County Mental Hospital, Stafford.
1905. Shaw, Charles John, M.D., Ch.B., F.R.C.P.Edin., J.P., Medical Superintendent, Royal Asylum, Montrose.
1917. Shaw, John Custance, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, West Ham Borough Mental Hospital, Goodmayes, Essex.
1904. Shaw, Patrick, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Medical Superintendent, Hospital for Insane, Ballarat, Victoria, Australia.
1909. Shaw, William Samuel Jagoe, Lt.-Col. I.M.S., M.D.Belf., M.B., B.Ch.R.U.I., c/o Messrs. Grindlay & Co., 54, Parliament Street, S.W. 1.
1920. Shearer, Christina Hamilton, M.B., Ch.B.Glasg., Senior Medical Officer, Cassel's Hospital, Swaylands, Penshurst, Kent.
1923. Shepherd, Charles Ernest Alan, M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, West Park Mental Hospital, Epsom, Surrey.
1900. Shera, John Egar Percival, M.D.Bru.x., L.R.C.P.&S.Irel., Medical Superintendent, Somerset County Asylum, Wells, Somerset.
1914. Sherlock, Edward Birchall, B.Sc., M.D.Lond., D.P.H., Barrister-at-Law, Medical Superintendent, Darenth Industrial Colony, Dartford.
1914. Shield, Hubert, M.C., M.B., B.S.Durh., Assistant Medical Officer, Gateshead Mental Hospital; 73, Holly Avenue, Jesmond, Newcastle-on-Tyne.
1923. Shore, G. W., M.D.Lond., D.P.H., D.P.M., Assistant Medical Officer, Springfield Mental Hospital, Tooting, London, S.W. 17.
1922. Shortt, Jane Elder, M.B., Ch.B.Glasg., Assistant Medical Officer, The Lawn, Lincoln.
1877. Shuttleworth, George E., B.A.Lond., M.D.Heidelb., M.R.C.S., L.S.A.Lond., 36, Lambolle Road, Hampstead, London, N.W. 3.
1901. Simpson, Alexander, C.B.E., M.A., M.D., C.M.Aberd., c/o County Mental Hospital, Winwick, Warrington.
1905. Simpson, Edward Swan, M.C., M.D., Ch.B.Edin., Medical Superintendent, East Riding Mental Hospital, Beverley, Yorks.

1888. Sinclair, Eric, M.D., C.M.Glasg., Inspector-General of Insane, Richmond Terrace, Domain, Sydney, N.S.W.
1891. Skeen, James Humphry, M.B., C.M.Aberd., M.P.C., Medical Superintendent, Fife and Kinross District Asylum, Cupar, N.B.
1921. Skene, Leslie Henderson, M.C., M.B., Ch.B.Edin., Dipl. Psych., Medical Superintendent, Mental Hospital, Union Mills, Isle of Man.
1914. Slaney, Chas. Newnham, M.R.C.S., L.R.C.P.Lond., 21, Walton Park, Liverpool.
1901. Slater, George Nathan Osocroft, M.D., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Essex County Mental Hospital, Brentwood.
1910. Smith, Gayton Warwick, M.D.Lond., B.S.Durh., M.R.C.S., L.R.C.P.Lond., D.P.H., Senior Assistant Medical Officer, Springfield Mental Hospital, Tooting, London, S.W. 17.
1905. Smith, George William, O.B.E., M.B., Ch.B.Edin., Wyke House, Isleworth, Middlesex.
1907. Smith, Henry Watson, O.B.E., M.D., Ch.B.Aberd., Director, Lebanon Hospital, Asfuriyeh, nr. Beyrout, Syria.
1923. Smith, Herbert, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Dorset County Mental Hospital, Herrison, Dorchester.
1899. Smith, John Grimmond, M.D., C.M.Edin., Medical Superintendent, County and City Mental Hospital, Burghill, nr. Hereford.
1920. Smith, Maurice Hamblin, M.A.Camb., M.D.Durh., M.R.C.S., L.R.C.P.Lond., H.M. Prison, Birmingham. (Lecturer on Criminology, Univ. of Birmingham.)
1885. Smith, R. Percy, M.D., B.S., F.R.C.P.Lond., M.P.C., 36, Queen Anne Street, Cavendish Square, London, W. 1. (*General Secretary, 1896-7. Chairman Educational Committee, 1899-1903.*) (*PRESIDENT, 1904-5.*)
1913. Smith, Thomas Cyril, M.B., Ch.B.Edin., Assistant Medical Officer (2nd), County Asylum, Barnwood, Gloucester.
1911. Smith, Thomas Waddelow, F.R.C.S.Eng., L.R.C.P., L.S.A.Lond., M.P.C., Senior Assistant Medical Officer, City Asylum, Nottingham.
1914. Smith, Walter Richard Hugh, B.A., M.D., B.Ch.Dubl., Senior Assistant Medical Officer, Salop County Mental Hospital, Bicton Heath, Shrewsbury.
1920. Smyth, Geoffrey Norman, L.R.C.P.&S.Irel., Assistant Medical Officer, St. Patrick's Hospital; 7, Dartmouth Square, Leeson Park, Dublin.
1921. Smyth, John Francis, M.B., B.Ch.N.U.I., Assistant Medical Officer, West Riding Asylum, Wakefield.
1899. Smyth, Walter Samuel, M.B., B.Ch.R.U.I., Assistant Medical Superintendent, County Asylum, Antrim.
1923. Somerville, George, M.B., Ch.B.Edin., D.P.M., Assistant Medical Officer, West Ham Mental Hospital, Goodmayes, Ilford.
1913. Somerville, Henry, B.Sc., M.R.C.S., L.R.C.P.Lond., F.C.S., Harrold, Sharnbrook, S.O., Beds.
1885. Soutar, James Greig, M.B., C.M.Edin., M.P.C., 20, Royal Parade, Cheltenham. (*PRESIDENT, 1912-13.*)
1906. Spark, Percy Charles, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, London County Mental Hospital, Banstead, Surrey.
1875. Spence, J. Beveridge, O.B.E., M.D., M.Ch.Q.U.I., L.A.H.Dubl., 1, St. Matthew's Road, St. Leonards-on-Sea. (*First Registrar, 1892-1899; Chairman Parliamentary Committee, 1910-12.*) (*PRESIDENT, 1899-1900.*)
1922. Spence, Thomas Reginald Carwardine, M.C., M.B., Ch.B.Edin., Deputy Medical Superintendent, Kesteven County Asylum, Sleaford, Lincs.
1920. Staley, Mildred Ernestine, M.B., B.S.Lond., 100, Grey Street, Auckland, New Zealand.
1891. Stansfield, T. E. K., C.B.E., M.B., C.M.Edin., Southmead, Wimbledon Park, London, S.W. 19.

1901. Starkey, William, M.B., B.Ch.R.U.I., Medical Superintendent, Plymouth Mental Hospital, Blackadon, Ivybridge, S. Devon. (*Secretary South-Western Division, since 1922.*)
1907. Steele, Patrick, M.D., Ch.B., F.R.C.P.Edin., Medical Superintendent, Roxburgh District Asylum; The Hermitage, Melrose.
1898. Steen, Robert Hunter, B.A.R.U.I., M.D., F.R.C.P.Lond., Medical Superintendent, City of London Mental Hospital, Stone, Dartford. (*Hon. Sec. S.E. Division, 1905-10; Acting Gen. Sec. and Gen. Sec. 1915-19.*)
1914. Stephens, Harold Freize, M.R.C.S., L.R.C.P.Lond., The Manor Cert. Institution for Mental Defectives, Epsom, Surrey.
1909. Stewart, Sidney John, D.S.O., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., D.P.H., Langton Lodge, Farncombe, Surrey.
1922. Stewart, Francis Hugh, M.A., D.Sc.St.And., M.D., Ch.B.Edin., Assistant Medical Officer, County Mental Hospital, Cheddleton, Staffs.
1868. Stewart, James, B.A.Q.U.I., F.R.C.P.Edin., L.R.C.S.Irel., "Donegal," 32, Kingsmead Road, London, S.W. 2.
1887. Stewart, Rothsay Charles, M.R.C.S., L.S.A.Lond., Medical Superintendent, County Mental Hospital, Narborough, nr. Leicester.
1914. Stewart, Roy MacKenzie, M.D., Ch.B., M.R.C.P.Edin., D.P.M., Medical Superintendent, Leavesden Mental Hospital; Woodside, Leavesden, Watford.
1905. Stilwell, Henry Francis, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., Hayes Park, Hayes, Middlesex.
1899. Stilwell, Reginald John, M.R.C.S., L.R.C.P.Lond., Moorcroft House, Hillingdon, Middlesex.
1897. Stoddart, William Henry Butter, M.D., B.S., F.R.C.P.Lond., M.R.C.S. Eng., M.P.C., Harcourt House, Cavendish Square, London, W. 1. (*Hon. Sec. Educational Committee, 1908-1912.*) (Lect. on Ment. Dis., St. Thomas's Hosp.)
1909. Stokes, Frederick Ernest, M.D., Ch.B.Glasg., D.P.H., Senior Assistant Medical Officer, Borough Mental Hospital, Portsmouth.
1903. Stratton, Percy Haughton, M.R.C.S., L.R.C.P.Lond., York Lodge, Cliff Cottage Road, Bournemouth.
1885. Street, Charles Tidbury, M.R.C.S., L.R.C.P.Lond., Moulton Hall, Middleton Tyas, Yorks.
1909. Stuart, Frederick Joshua, O.B.E., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Northampton County Mental Hospital, Berrywood.
1924. Sturrock, Alexander Corsar, M.A., M.D., C.M.Edin., M.R.C.P.Lond., Physician, Salford Royal Hospital; Preston House, Eccles, Manchester.
1900. Sturrock, James Prain, M.A.St.And., M.D., C.M.Edin., H.M. Commissioner, General Board of Control for Scotland, 25, Palmerston Place, Edinburgh.
1886. Suffern, Alex. Canning, O.B.E., M.D., M.Ch.R.U.I., Glen-y-Mor, Hill Head, Fareham, Hants.
1921. Suffern, Canning, M.A., M.B., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Glen-y-Mor, Hill Head, Fareham, Hants.
1922. Sullivan, Patrick Daniel, F.R.C.S., L.R.C.P.Irel., Medical Superintendent, Verville Asylum, Clontarf, co. Dublin.
1894. Sullivan, William Charles, M.D., B.Ch.R.U.I., Medical Superintendent, State Criminal Lunatic Asylum, Broadmoor, Crowthorne, Berks.
1918. Sutherland, Francis, M.B., Ch.B.Edin., D.P.H., Sconser Lodge, Sligachan, Isle of Skye.
1919. Suttie, Ian D., M.B., Ch.B., F.R.F.P.S.Glasg., Medical Superintendent, C.L.D., Perth Prison, Perth.
1908. Swift, Eric W. D., M.B.Lond., Physician, Valkenberg Mental Hospital, Observataens, Cape Town, S. Africa.
1923. Tattersall, Stanley Roy, M.R.C.S., L.R.C.P.Lond., Pathologist, County Mental Hospital, Lancaster.

1910. Taylor, Arthur Loudoun, B.Sc., M.B., F.R.C.P.Edin., Neurological Specialist, Ministry of Pensions; 4, Mayfield Terrace, Edinburgh.
1924. Taylor, Frederic Cecil Marsh, M.R.C.S., L.R.C.P.Lond., Kent County Mental Hospital, Chartham Downs, nr. Canterbury.
1897. Taylor, Frederic Ryott Percival, M.D., B.S., M.R.C.S., L.R.C.P. Lond., Medical Superintendent, East Sussex Mental Hospital, Hellingly.
1921. Thomas, Cyril James, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, County Mental Hospital, Lancaster.
1920. Thomas, Frederic Percival Selwyn, M.D., Ch.B.Manch., The Oaks, Porthill, Staffordshire.
1908. Thomas, Joseph David, B.A., M.B., B.C.Camb., Northwoods House, Winterbourne, Bristol.
1911. Thomas, William Rees, M.D., B.S., M.R.C.S., M.R.C.P.Lond., D.P.M., M.P.C., Medical Superintendent, Rampton State Institution, near Retford, Notts; Gray Ridges, Woodbeck, Retford, Notts.
1921. Thompson, James Arthur, B.A., M.B., B.Ch.Dubl., Surgeon-Cdr. R.N., Royal Naval Hospital, Haslar.
1921. Thomson, Aidan Gordon Wemyss, M.B., Ch.B.Glasg., Assistant Physician, Glasgow Royal Asylum, Gartnavel.
1920. Thomson, William George, M.A., M.B., Ch.B.Aberd., D.P.H., Deputy Medical Superintendent, Cheadle Royal, Cheadle, Cheshire.
1901. Tighe, John Valerian George Brosnan, M.B., B.Ch.R.U.I., Medical Superintendent, Gateshead Mental Hospital, Stannington, Northumberland.
1914. Tisdall, Charles Jerome, M.B., Ch.B.Edin., D.C.M.S. Ministry of Pensions; Tue Brook Villa, Liverpool.
1903. Topham, J. Arthur, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Kent County Mental Hospital, Chartham, Canterbury.
1896. Townsend, Arthur Allen Deykin, M.D., B.Ch.Birm., M.R.C.S., L.R.C.P. Lond., Medical Superintendent, Barnwood House Hospital for Insane, Gloucester.
1903. Tredgold, Alfred Frank, M.D.Durh., M.R.C.S., M.R.C.P.Lond., F.R.S. Edin., "St. Martin's," Guildford, Surrey.
1908. Tuach-MacKenzie, William, M.D., Ch.B.Aberd., Physician Superintendent, Royal and District Asylums, Dundee; Westgreen, Dundee. (Lect. on Ment. Dis., St. And. Univ.)
1881. Tuke, Charles Molesworth, M.R.C.S.Eng., Chiswick House, Chiswick, W. 4.
1906. Turnbull, Peter Mortimer, M.C., M.B., B.Ch.Aberd., Senior Assistant Medical Officer, Mental Hospital, Caterham.
1909. Turnbull, Robert Cyril, M.D., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Essex County Mental Hospital, Colchester.
1889. Turner, Alfred, M.D., C.M.Edin., Medical Superintendent, Plympton House, Plympton, S. Devon.
1906. Turner, Frank Douglas, M.B., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Royal Eastern Counties Institution, Colchester.
1922. Twomey, John Christopher, M.B., Ch.B.Liverp., D.P.H., Assistant Physician, The Mental Hospital, Queenstown, South Africa; c/o Secretary for Interior, Pretoria.
1917. Vevers, Oswald Henry, M.R.C.S., L.R.C.P.Lond., Norton Vicarage, Evesham.
1922. Viehoff, Herman Crowther, M.R.C.S. L.R.C.P.Lond., Coton Hill Mental Hospital, Stafford.
1904. Vincent, George A., M.B., B.Ch.Edin., Assistant Medical Superintendent, St. Ann's Asylum, Port of Spain, Trinidad, B.W.I.
1894. Vincent, William James N., C.B.E., M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, South Yorkshire Asylum, Wadsley, nr. Sheffield. (Lect. on Psychiatry, Univ. of Sheffield.)

1923. Wadsworth, George Reginald, M.B., B.Ch.Belf., Assistant Medical Officer, County Mental Hospital, Lancaster.
1920. Walker, James, M.D., Ch.B.Edin., D.P.H., M.P.C., Senior Assistant Medical Officer, Cardiff City Mental Hospital, Whitchurch, nr. Cardiff.
1914. Walker, Robert Clive, M.D., Ch.B.Edin., Deputy Medical Superintendent, West Riding Asylum, Menston, nr. Leeds.
1923. Walker, William Henry, L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., "Rydal," West Crescent, Darlington, Yorks.
1908. Wallace, John Andrew Leslie, M.D., Ch.B.Edin., M.P.C., J.P., Mental Hospital, Callan Park, Sydney, N.S.W.
1912. Wallace, Vivian, L.R.C.P.&S.Irel., D.P.H., Ballinakill, Multyfarnham, co. Westmeath.
1920. Wanklyn, William McConnel, B.A.Camb., M.R.C.S., L.R.C.P.Lond., D.P.H., Principal Assistant in the Public Health Department of the London County Council; 8, Luxemburg Gardens, W. 6.
1889. Warnock, John, C.M.G., B.Sc., M.D., C.M.Edin., 28, Addison Road, Kensington, W. 14.
1895. Waterston, Jane Elizabeth, M.D.Bru.x., M.R.C.P.Irel., L.R.C.S.Edin., M.P.C., 85, Parliament Street, Cape Town, South Africa.
1922. Watson, Douglas Chalmers, M.D., F.R.C.P.Edin., Physician, Royal Infirmary, Edinburgh; 11, Walker Street, Edinburgh.
1891. Watson, George Alfred, M.B., C.M.Edin., M.P.C., Pathologist to the Lancashire County Mental Hospitals; Rainhill Cottage, Rainhill, Liverpool.
1908. Watson, Hugh Ferguson, M.D., Ch.B.Glasg., L.R.C.P.&S.Edin., L.R.F.P.S.Glasg., F.R.S.Edin., D.P.H., Deputy Commissioner, General Board of Control for Scotland, 25, Palmerston Place, Edinburgh; Northcote, Edinburgh Road, Perth.
1924. Watson, John, M.C., B.Ch.Edin., Resident Medical Superintendent, Londonderry District Asylum, Ireland.
1911. Webber, Leonard Mortis, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Surrey County Mental Hospital, Netherne, Coulsdon.
1922. Webster, William Leckie, M.B., Ch.B.Edin., Major R.A.M.C., "D" Block, Royal Victoria Hospital, Netley, Hants.
1919. Westrupp, Joseph Perceval, M.R.C.S., L.R.C.P.Lond., Medical Officer, The Old Manor, Salisbury.
1911. White, Edward Barton Cartwright, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Bristol Mental Hospital, Fishponds, Bristol.
1884. White, Ernest William, C.B.E., M.B., M.R.C.P., M.R.C.S., L.S.A.Lond., Betley House, near Shrewsbury. (*Hon. Sec. South-Eastern Division, 1897-1900.*) (*Chairman Parliamentary Committee, 1904-7.*) (PRESIDENT 1903-4.)
1921. Whitelaw, William, M.B., B.Ch.Glasg., Director Western Asylums Research Institute; 10, Claythorn Road, Glasgow, W.
1905. Whittington, Richard, M.A., M.D.Oxon., M.R.C.S., L.R.C.P.Lond., 1, Eaton Gardens, Hove, Sussex.
1889. Whitwell, James Richard, M.B., C.M.Edin., 2, Mount Felix, Walton-on-Thames, Surrey.
1913. Wilkins, William Douglas, M.B., Ch.B.Vict., M.R.C.S., L.R.C.P.Lond., D.P.M., Senior Assistant Medical Officer, Stafford County Mental Hospital, Cheddleton, nr. Leek.
1900. Wilkinson, Harry Bacon, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Plymouth Mental Hospital, Blackadon, Ivybridge, South Devon.
1887. Will, John Kennedy, M.A., M.D., C.M.Aberd., M.P.C., Chesterfield, 214, Anerley Road, S.E. 20.
1905. Williams, David John, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, The Asylum, Kingston, Jamaica.
1922. Williamson, David Hardie, M.B., Ch.B.Edin., Assistant Medical Officer, Woodilee Mental Hospital, Lenzie.

1923. Wilson, Alban, M.R.C.S., L.R.C.P.Lond., D.P.M., Deputy Medical Superintendent, Knowle Mental Hospital, Fareham, Hants.
1922. Wilson, Ambrose Cyril, M.R.C.S., L.R.C.P.Lond., Neurological Specialist, Ministry of Pensions; 27, Nottingham Place, London, W. 1.
1922. Wilson, Fred, M.B., Ch.B.Aberd., Assistant Medical Superintendent, Central Mental Hospital, Tanjong Rambutan, Federated Malay States.
1923. Wilson, Isabel Grace Hood, M.B., Ch.B.Edin., Assistant Medical Officer, Allanton House, Newmains, Lanarkshire.
1920. Wilson, James Leitch, M.B., Ch.B.Edin., D.P.M., Assistant Medical Officer, Brooke House; 63, Kenninghall Road, Clapton, E. 5.
1916. Wilson, Marguerite, M.B., Ch.B.Glasg., D.P.M., The Retreat, York.
1899. Wolseley-Lewis, Herbert, M.D.Bruz., F.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Kent County Mental Hospital, Barming Heath, Maidstone. (*Secretary Parliamentary Committee*, 1907-12; *Chairman*, 1912-21.)
1921. Wood, Bertram William Francis, M.B., B.S.Leeds, West African Medical Staff; c/o P.O., Lagos, South Province, Nigeria.
1869. Wood, T. Outterson, M.D.Durh., M.R.C.P.Lond., F.R.C.P., F.R.C.S. Edin., "Lodore," Chelston Road, Torquay. (*PRESIDENT*, 1905-6.)
1912. Woods, James Cowan, B.A.R.U.I., M.D., B.S., M.R.C.S., L.R.C.P.Lond., 45, Weymouth Street, W. 1. (Lect. on Ment. Dis., St. George's Hosp. and London Hosp.)
1885. Woods, John Francis, M.D.Durh., M.R.C.S., L.S.A.Lond., 7, Harley Street, Cavendish Square, London, W. 1.
1912. Wootton, John Charles, M.C., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Haydock Lodge, Newton-le-Willows, Lancs.
1922. Wootton, Leonard Henry, M.C., B.Sc., M.B., B.S., M.R.C.S., L.R.C.P.Lond., D.P.M., Medical Superintendent, Ministry of Pensions Hospital, Ewell, Surrey.
1900. Worth, Reginald, O.B.E., M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Springfield Mental Hospital, nr. Tooting, S.W. 17. (*General Secretary since 1919.*)
1917. Wright, Maurice Beresford, O.B.E., M.D., C.M.Edin., 86, Brook Street, London, W. 1.
1921. Yellowlees, David, M.B., Ch.B.Glasg., 5, St. James Terrace, Glasgow, W.
1914. Yellowlees, Henry, O.B.E., M.D., Ch.B., F.R.F.P.S.Glasg., Medical Superintendent, The Retreat, York.

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HONORARY MEMBERS	29
CORRESPONDING MEMBERS	16
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OBITUARY.*Honorary Members.*

1889. Needham, Sir Frederick, M.D.St. And., M.R.C.P.Edin., M.R.C.S.Eng., Imperial Hotel, Bournemouth. (PRESIDENT, 1887-88.)
 1909. Obersteiner, Hofrat Prof. Dr. Heinrich.
 1881. Peeters, M., M.D.
 1910. Trevor, Arthur Hill, Esq., B.A.Oxon., of the Inner Temple, Barrister at Law, Commissioner of the Board of Control, 4, Albemarle Street, London, W. 1.

Members.

1899. Eades, Albert I., L.R.C.P.&S.Irel., Medical Superintendent, North Riding Mental Hospital, Clifton, Yorks.
 1902. Forde, Michael J., M.D., B.Ch.R.U.I., Assistant Medical Officer, Grange-gorman Mental Hospital, Dublin.
 1889. Gill, Stanley Augustine, B.A.Dubl., M.D.Durh., M.R.C.S., M.R.C.P. Lond., Shaftesbury House, Formby, Liverpool.
 1878. Glendinning, James, M.D.Glasg., L.R.C.S.Edin., Lyndhurst, Avenue Road, Abergavenny.
 1894. Gwynn, Charles Henry, M.D., C.M.Edin., M.R.C.S.Eng., co-Licensee, St. Mary's House, Whitchurch, Salop.
 1877. Hewson, Robert William, L.R.C.P.&S.Edin., Medical Superintendent, Coton Hill Mental Hospital, Stafford.
 1898. Parker, William Arnot, M.B., C.M.Glasg., M.P.C., Medical Superintendent, Gartloch Mental Hospital, Gartcosh, N.B.
 1910. Powell, James Farquharson, M.C., M.R.C.S., L.R.C.P.Lond., D.P.H., D.P.M., M.P.C., 8, Boscobel Road, St. Leonards-on-Sea.
 1889. Scowcroft, Walter, M.R.C.S.Eng., L.R.C.P.Irel., St. Ann's Cottage, St. Ann's Road, Cheadle.
 1884. Smith, W. Beattie, F.R.C.S., L.R.C.P.Edin., 4, Collins Street, Melbourne, Victoria.

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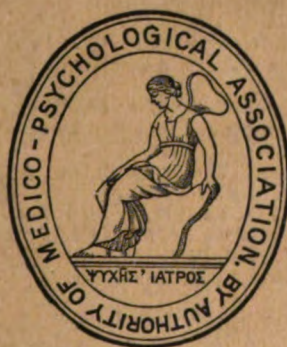
JANUARY, 1925.

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MAR 27 1925

EDITORS

J. R. Lord, C.B.E., M.B. Henry Devine, O.B.E., M.D.
G. Douglas McRae, M.D.



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The following Mental Hospital Reports for 1923-24 have been received :

Barnwood House.
The Retreat, York.
Kent County.
Monmouthshire.
St. Audry's Hospital.
Inverness.
The Maudsley Hospital.

Also the following Reports and Reprints :

State Hospital Commission of New York, 35th Report, 1922-23.
The Neurological Institution of New York, Annual Report for 1923.
Federated Malay States, Medical Report for 1923.
Metropolitan Asylums Board, Annual Report for 1923-24.
General Board of Control for Scotland, 10th Annual Report (for 1923).
Girl Guiding with Mental Defectives in a Certified Institution, by *Dr. H. Freize Stephens*.
Schizophrenia : Its Conservative and Malignant Features, by *Dr. H. S. Sullivan*.
An Address on Sleep, Sleeplessness and Sleepiness, by *Sir Frederick W. Mott*.
The Treatment of Mental Disorders on a Voluntary Basis, by *Dr. E. Mapother*.

Books received :

Clinical Studies in Epilepsy, by *Donald Fraser, M.D.*
Skill in Work and Play, by *T. H. Pear, M.A., B.Sc.*
Women Characters in Richard Wagner, by *Louise Brink, Ph.D.*
À propos de Bergson, par *Firmin Nicolardot*.
Rejuvenation, by *Norman Haire, Ch.M., M.B.*
The Internal Secretions, by *Dr. Arthur Weil*.
Vitamins, by *Ragnar Berg*.
Psychological Tests in Business, by *Arthur W. Kornhauser and Forrest A. Kingsbury*.
A Present-day Conception of Mental Disorders, by *Charles MacFie Campbell, M.D.*
La Psychologie des Névroses, by *Dr. O. L. Forel*.
Technique Clinique d'Ex amen Complet du Système Nerveux, par *G. H. Monrad-Krohn*.
The Comitadji Question in Southern Serbia, by *R. A. Reiss, D.Sc.*
The Medical Year-Book and Classified Directory, 1925, edited by *C. R. Hewitt*.
English Theologians : The Lady Julian. A Psychological Study, by *R. H. Thouless, M.A., Ph.D.*
Collected Papers, Vols. I and II, by *Sigm. Freud*.
Text-book of Psychiatry, by *Prof. Eugen Bleuler*. Authorized translation by *A. A. Brill, Ph.B., M.D.*
How to Avert Cancer, by *H. Reinheimer*.

NOTICE.

The following Volumes and Numbers of the *Journal of Mental Science* are required :

Volumes I, II, III, IV, V, XXX, XXXI, XXXII, XXXIII, XXXIV, XXXVI, XL.

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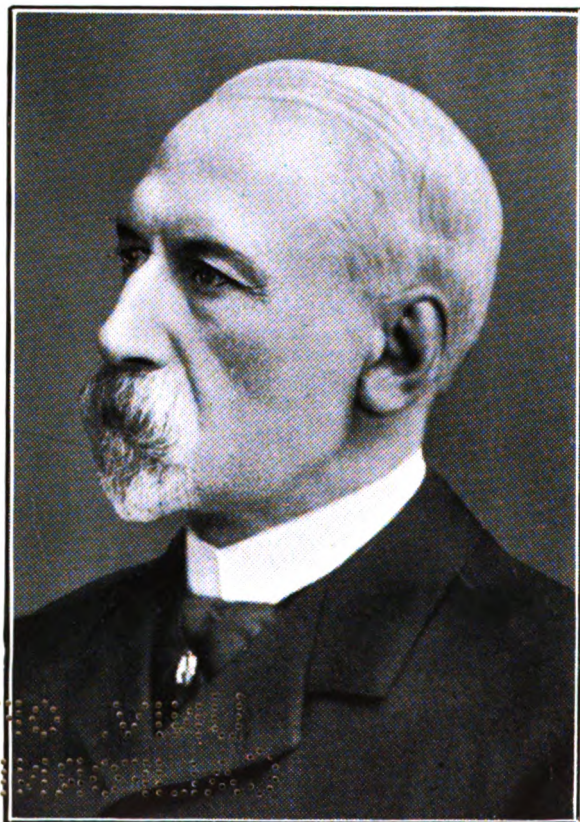
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SIR FREDERICK NEEDHAM, M.D.ST.AND., M.R.C.P.EDIN.,
M.R.C.S.ENG.

WITH perhaps the exception of the youngest in our ranks, there can be no member of the Association or, indeed, of our branch of Medicine, who learnt of the death of Sir Frederick Needham without realizing that an important link was thereby severed in the sequence of those who, in our time and in their respective spheres of action, have rendered great service to psychological medicine, especially in bringing about the many improvements that have taken place during the past three-quarters of a century in the conditions under which insane patients are housed and treated.

During the major portion of that long period Needham was not only an active and indefatigable worker, but was an outstanding figure. With his strong, somewhat stern face, and tall well-knit frame he was the model for the man-at-arms in Blair Leighton's picture, "*Vox Populi*"—and with his directness of speech, scorn of diplomacy, breadth of vision and ability to see essentials, he embodied a type not easily forgotten. He possessed, indeed, a personality; and although he was so long—twenty-seven years—a Commissioner that most of us remember him chiefly in that capacity, it would not be right, in an attempt to appreciate his influence and the affection and respect in which he was held, were omission made of the facts associated with his childhood and the earlier years of his life.

Frederick Needham was born in York in 1836, and was the younger of two children, both sons. He was brought up in high traditions of devotion to duty and service to his fellow-men; for his father, Dr. James Peacock Needham, was amongst the foremost of the medical men in that city in fighting the devastating cholera irruption, which, reaching York in June, 1832, and breaking out immediately after a race meeting, attacked one in every fifty-six of the inhabitants;

he lost his life six years later, at the age of 32, from pneumonia contracted in the discharge of professional duties, and when the subject of this memoir was only three years old. From the perusal of a small book⁽¹⁾ which he wrote in relation to this outbreak, its author, the father of the future Sir Frederick, is seen to have been a man of high purpose, self-sacrifice, transparent honesty, careful to acknowledge the work of others, and sensitively courteous towards those from whose opinions he differed. These qualities, perhaps to some extent transmissible, cannot have failed to serve as an incentive and tradition not merely to be cherished with legitimate filial pride, but to be translated into actualities in the lives of his children. However potent this influence may have been, to be bereft of such a father at so tender an age must always be a disaster, and it was fortunate for the two sons that they possessed a mother not less high-minded as well as resourceful. Very largely to her Sir Frederick Needham always ascribed the foundations for his success in life. Left with only slight provision, owing to the early death of her husband, the widow devoted all her energies and slender resources to the education of her sons—the elder for the Church, in which he succeeded and held a living near Wakefield, and the younger (Frederick) for the medical profession—and it is pleasant to know that, in reaching beyond the allotted span of human life, she witnessed in the success of both her sons the fruits of her own efforts on their behalf. Brought up in such straitened circumstances, lessons in self-denial and self-control were obligatory and early learnt.

Needham's early education was obtained at St. Peter's School in York, which, dating back as it does to the eighth century, is one of the oldest schools in England. It is not without interest to learn that among his companions at school were Sir Clifford Allbutt, Bishop Brown, of Bristol (retired), Hughlings Jackson and Jonathan Hutchinson. The influence and stimulus of such a constellation of intellectual giants, even in the heedless days of early adolescence, can scarcely have been a negligible quantity.

Following a period of apprenticeship with a doctor in York, Needham studied in London at St. Bartholomew's Hospital, and, having qualified in 1858 as M.R.C.S. England and L.S.A., he graduated M.D. of St. Andrew's University in 1862, and three years later he became a member of the Royal College of Physicians in Edinburgh.

Despite his youth—only 22 years of age—Needham was appointed almost immediately after qualifying to the Medical Superintendentship of the York Hospital for the Insane (Bootham Park)—a post he won not without doughty competition, for among the select

list of six of the candidates appears the name of Dr. Maudsley. The post at that time was but a small one; it was designated sometimes as medical superintendent and sometimes as house-surgeon, and carried with it a salary of £150 a year without provision for its occupant being married. The hospital itself, though it was then doing good work and had been purged of the abuses for which, 130 years ago, it had once been notorious, lagged behind in some respects, especially in its arrangements for so-called pauper patients, who, in those days, formed a section of several of the registered hospitals for the insane. Needham set himself to make good these deficiencies and to bring the institution up to date; and, if at the end of sixteen years, when he relinquished this post, some of his efforts still awaited fruition in the hands of others, he had accomplished much good work, the number of patients had risen from 120 to 197, and the revenue of the hospital had doubled. It was, indeed, in no uncertain terms that the Committee of Governors, who within three years of his appointment had recognized his capacity and had materially improved the status of the post and its remuneration, testified to the energy, zeal, ability and success with which he had discharged very onerous duties.

Those were the days when an active campaign was still being conducted by the most enlightened of the physicians in mental disorders against the systematic use of mechanical restraint and other allied forms of treatment. Of all these devices Needham was always a stern opponent: even with respect to forced alimention by the nasal or œsophageal tube, salutary and life-saving as he admitted them to be when judiciously used, he urged that there were not a few cases in which rectal^f feeding was kinder, safer, and as efficacious. In this relation, and to anticipate for a moment his work as a Commissioner, it is of interest to know that it was he who, on behalf of the Board, drew up not only the regulations made under the section in the Lunacy Act dealing with mechanical restraint, but also the definition of "seclusion"—the steady enforcement of both of which has left so deep a mark in the better treatment of the insane. Wisely—and a lesson many of us might profitably take—Needham by no means immured himself; entering into the social life of the neighbourhood, he also often lectured for the Yorkshire Philosophical Society, and took an active interest in the Society's scientific and archæological researches; he was President and subsequently an honorary member of the York Medical Society. Bound by many ties to the city in which he was born and bred, beneath the shadow of whose minster he was taught, and in whose social and professional life he was held in high esteem, his appointment to Bootham Park, the present high reputation

of which is now so well known, brought him no small satisfaction, and he ever maintained an abiding affection for his native county and its associations.

This affection and his association with York were widely known. In this connection, and if a reminiscence in a lighter vein be not wholly out of place, the following incident will serve to show the happy relations which subsisted between Sir Frederick Needham, as a Commissioner, and the patients whom, in the course of his duties, he visited : On completing his inspection of a large county mental hospital it was discovered that he and his colleagues had omitted to see a certain patient—one who, though of humble upbringing, was a wide reader and not ill-versed in poetry, and who, by reason of his integrity and accuracy, was entrusted with important clerical work ; it was owing to being thus seldom in his ward that he had been overlooked. After passing the time of day with him at the front door of the hospital and commending him for his work, Sir Frederick, in turning to say good-bye, and in response to the patient's remark about the coldness and discomfort of the weather, laughingly made use of the quotation, "Now is the winter of our discontent " ; to which in a flash and without a moment's hesitation came the rejoinder—"Yes, Sir, but made glorious summer by this sun of York." Needham's enjoyment of this subtle humour was not greater than his surprise at the reply from such a source ; and, indeed, what sane wit or courtier could have responded more deftly than this poor patient ?

While at Bootham Park, and some four years after his appointment, Dr. Needham had married Charlotte, the daughter of the Rev. J. Shooter, Vicar of Bishop Wilton, in Yorkshire. Her health was not very good, and it was thought that residence in a more southerly county might be beneficial. This belief influenced Needham in his decision in 1874 to apply for, and ultimately to accept, in succession to Dr. Wood, the post of Medical Superintendent at Barnwood House, Gloucester. It was here that he found full scope for the exercise of his qualities of vision and prudent venture ; and, with the support and goodwill of his Committee and with his own now matured experience and foresight, he converted what was a homely but somewhat old-fashioned asylum into a modern mental hospital, equipped with every appliance which treatment at that date demanded, and which could conduce to comfort, composure and recovery. He considered that such an institution for the insane should represent both home and hospital—to which notion we would nowadays add the proviso that accommodation reserved for recent and presumably recoverable patients should be free from any atmosphere of chronicity—and he believed that the maintenance

of both conceptions was necessary as well as practicable; his ideal was on generous lines, he saw it realized, and the developments and adaptations he effected have stood the test of time. Of not less importance towards his success were his familiar knowledge of his patients and his kind solicitude for their individual welfare—the depth and reality of which never failed to impress visitors, whether official or others. By those who, having worked under him, were in the best position to judge, Needham was looked up to as a great chief; he encouraged initiative in his officers, but demanded reason in support of their suggestions; and he was always ready with commendation of the success of others, whether in work or play.

While at Gloucester, besides continuing to enter into the social life of the city and county, he occupied several Presidential chairs—notably in 1887, that of our own Association, when he gave an address upon the progress of the Lunacy Bill then before Parliament; of the Gloucestershire Medical and Surgical Association, and in 1890 that of the Psychological Section of the British Medical Association. Of the first two of these bodies and of the Medico-Legal Society of New York he was later elected an honorary member. He was a member of the Council of Epsom College, in the welfare of which establishment he took a lively interest. His reports upon foreign mental hospitals, a number of which he visited in the course of holidays spent abroad, are informative and marked by much critical acumen; besides which, he was the author of many thoughtful and valuable papers contributed to medical literature. In this connection, and as characteristic of his loyalty, mention may be made that, while in his Presidential Address he strenuously deprecated the function of the magistrate in the working of reception orders as being likely to delay and hamper treatment in early stages of mental disorder, he was, as a Commissioner, inflexible in insisting that the provisions of the Lunacy Acts and, later, of the Mental Deficiency Act were duly carried out. In 1871 he published a paper on the necessity for legislation in reference to habitual drunkards, and his views and influence were later on a powerful factor in framing the legislation which was enacted subsequently.

Those who still can remember Dr. and Mrs. Needham at Barnwood House speak in high terms of the wisdom and fine influence of the latter, upon whose health their migration to Gloucester had had the desired effect. It is certain that, encouraged by her husband, her personality and her devotion to the well-being of patients and staff were of signal assistance to him; and, when this second chapter in his life's work terminated, his Committee included in their high testimony of his nearly eighteen years' superintendentship a graceful

tribute to her voluntary assistance. She died in 1907, and a stained-glass window to her memory was placed in the chapel of the hospital.

It was in April, 1892, when Sir Clifford Allbutt relinquished his Commissionership upon being called to Cambridge as Regius Professor of Physic, that Dr. Needham was offered and accepted the post of Commissioner in Lunacy; and, upon the coming into force of the Mental Deficiency Act of 1913, he *ipso facto* became Commissioner of the Board of Control. These positions, extending together to the long span of twenty-seven years, he filled with conspicuous distinction until his retirement in June, 1919. Needham's professional life readily divides itself into three chapters—to which, if the peculiarly happy years of his retirement may be included, a fourth might be added. To attempt to appraise with nicety the relative importance of these chapters would be futile as well as rash; each had its own significance, as well for himself as for the many thousands who came under his influence; and many years will pass before the latter has spent itself. Naturally, however, it was in his capacity as Commissioner that this influence came to be most widely felt. Of his dignified appearance and manner—no mean asset in themselves—something has already been said. It was quickly evident from his force of character, energy and outstanding personality that here was an official who had to be taken very seriously; and that he was by some held somewhat in awe, especially in his early days as a Commissioner, is undoubted. But, of those who may have resented his criticisms, it is probable that there is now not one who did not later learn their justice, and find in him a very real friend and mentor. Whatever austerity of manner there may have been—and he could, indeed, be stern when occasion demanded it—this was very superficial; closely beneath it was a kindliness of heart, a uniformly good temper, and a full measure of that spirit of helpfulness which has been said to give to the profession of medicine its value to humanity. Not an active worker upon the scientific side of medicine, he nevertheless fully recognized the necessity for research, and he was an active member of the Royal Commission (1904–8) on the Care and Control of the Feeble-minded. But he worked always for the betterment and happiness of the individual; to him the patients were never really cases.

If some characteristic be sought of his attitude towards his responsibilities as a Commissioner, it can safely be said that, over and above the inspectorial and advisory duties of the Board, he always considered that any question affecting personal liberty and the propriety of remaining under certificates was of paramount concern, and that it was of vital importance to maintain a close

and individual touch between the Commissioners and the patients, to whom the former should at all times, either at visits or through the post, extend a sympathetic ear. He was especially insistent upon the provision of adequate safeguards, structural and otherwise, in case of fire. That a large section of the patients were conscious of the friend they had in Sir Frederick Needham was manifest from their numerous inquiries of his former colleagues as to his welfare. Broad-minded, peculiarly tolerant of opposition and of the views of others, a most patient listener to conflicting claims and endowed with a keen sense of justice, his judgment, opinion and advice were of immense value and weight to the Board of Control; and it was no wonder that, when he retired, his colleagues, by each and all of whom he was revered, felt his loss to be irreparable.

No servant of the public has better deserved the honour of Knighthood, which was conferred upon him in 1915.

In 1914 Sir Frederick Needham remarried, his second wife, by whom he is survived, being Helen, daughter of Mr. W. L. Newman, of York. Members of our Association will recall how astonishing, to the very end of his Commissionership, was his physical endurance, and how after a long, and what to most persons would be an exhausting day's visit, he would sometimes walk to the station—"to take exercise," as he put it. From Lady Needham, who can look back as a school-girl to his work in York and Gloucester, and whose help (?) in the preparation of this memoir has been immense, it is pleasant to learn—as some of us were privileged to witness—how happily he spent the closing years of his life at Bournemouth, enjoying his leisure in reading, walking, and in the society of his friends, none of whom will forget the charm of his welcome. It was not until five months before his death, which occurred on September 6, 1924, that his health failed, and in those months he was greatly helped and solaced by the devoted skill and friendship of his doctor, Dr. Hyla Greves. In the sorrow of her bereavement Lady Needham has the consolation of knowing, as all her late husband's more intimate friends know, that she brought great happiness and comfort to him in his latter years. The interment, at which besides his widow, relatives and friends, three of his old colleagues—representing the legal and medical side of the Commission—were present, took place on September 9 in Bournemouth Cemetery, after the first part of the service had been held in St. John's Church, Boscombe.

Any attempt to depict the life of the late Sir Frederick Needham would not only be incomplete, but would be to give the shell without the kernel, were no mention made of his deep religious faith.

Disliking ritualistic form, he held close to the faith of the Established Church in its Evangelical form, and, in the translation of his faith into practice, his hand was ever ready to be stretched out to the poor, weak or suffering. Abhorring outward show and anything false or pretentious, his home life was of the simplest. To those nearest to him and to his friends he was the most delightful companion, ready to enter into the fun and enjoyment of life, yet striking a deep note of intellectual thought and of those still deeper things without which no companionship is worth having. The key to his life lies in the following words, found written on the front page of his diary :

"Do justly, love mercy, walk humbly with thy God."

C. H. B.

(¹) *Facts and Observations Relative to the Disease commonly called Cholera, as it has recently prevailed in the City of York*, by J. P. Needham, Member of the Royal College of Surgeons in London, MDCCCXXXIII. A book of 138 pages and dedicated to Thomas Simpson, M.D., one of the Physicians to the York Dispensary, and printed by R. Needham, 30, Pitfield Street, London. Is the name of the printer merely a coincidence? The copy, kindly lent for the framing of this article by the Librarian of the Royal Society of Medicine, is a presentation one, and on the title-page are two lines apparently in Dr. J. P. Needham's handwriting. Though close upon 100 years have elapsed since it was published, the book still repays perusal, as well for historical gleanings as for the enlightened manner in which its author approached conflicting evidence, and what was then a very baffling problem. In those days no one in York could practice any profession or set up in business of any kind until enrolled on the list of Freemen. Reference to this list shows that James Peacock Needham took up his Freedom of York in 1832 and is therein described as a Surgeon.—(²) Much assistance has also been kindly forthcoming from Dr. Soutar, Dr. Jeffrey, Dr. Edwards, Sir James Crichton-Browne, Sir Dawson Williams, and Mr. Cooper. Portions of this memoir appeared in the *British Medical Journal* and *Lancet* in their issues of September 20, 1924.

Part I.—Original Articles.

Some Observations on the Types of Blood-Sugar Curve found in Different Forms of Insanity. By K. K. DRURY, M.C., M.D., B.Ch., B.A.O., and C. FARRAN-RIDGE, B.Sc., M.B., Ch.M., D.P.M., Assistant Medical Officers, County Mental Hospital, Stafford.

THE object of our investigations has been to find out if carbohydrate metabolism is disordered in the different forms of insanity.

To this end we have determined the sugar tolerance of 100 insane patients by observing the variations in the blood-sugar content after the ingestion of a known amount of glucose.

For the blood-sugar estimations we have used Calvert's method, and have strictly followed his technique, which is fully described in his paper entitled "Estimation of Sugar in the Blood" (1).

The routine we have adopted has been uniform throughout. The patient receives no food after 8 p.m. on the night previous to the test. On the morning of the test, prior to entering the laboratory, the patient passes a specimen of urine, which is examined for acetone and sugar. At 9.30 a.m. the first sample of blood is taken to determine the fasting level. The patient is then given 50 grm. of medicinal glucose (British Drug Houses), dissolved in 150 c.c. of water. Thereafter blood-sugar determinations are made at half-hourly intervals for two hours or longer. The resulting blood-sugar percentages are plotted so as to give a curve. One hour after the ingestion of the 50 grm. of glucose another specimen of urine is obtained, and tested as before for acetone and sugar.

THEORY OF CARBOHYDRATE METABOLISM.

The conflicting theories of physiologists regarding carbohydrate metabolism make the interpretation of the curves a matter of difficulty; in fact the whole question of carbohydrate metabolism is at present in the melting-pot. Older views are being constantly attacked and newer ones counter-attacked.

The percentage of sugar in the venous blood serves only as an index of the balance between the rates of supply and utilization (MacLeod (2)).

In attempting to interpret the form of sugar tolerance curves such as we have obtained, one has to consider—

- (1) The influence of the rate of absorption into the blood.
- (2) The mechanisms which control the utilization of the sugar once absorbed.

With regard to the first point, we note that certain investigators in determining sugar tolerance give weighed quantities of bread and other carbohydrates instead of glucose in order to render the test-meals more palatable. We cannot agree with this procedure, as individual variations in the rate of digestion and absorption cannot be estimated, and we have endeavoured to eliminate this disturbing factor as far as possible by giving unadulterated solutions of glucose, which are probably absorbed at much the same rate in all cases.

The initial rise of blood-sugar after the ingestion of glucose is easily understood; it means simply that a large amount of sugar is being absorbed into the blood (Fig. 1).

It is far more difficult to account for the subsequent behaviour

of the curve, and for our ideas on this subject we are greatly indebted to MacLean.

The marked fall which occurs shortly after the maximum concentration is reached might be explained by—

- (1) The cessation of absorption.
- (2) A sudden increase in the rate of katabolism of sugar.
- (3) The fact that sugar is removed from the blood and stored more rapidly than it is absorbed.

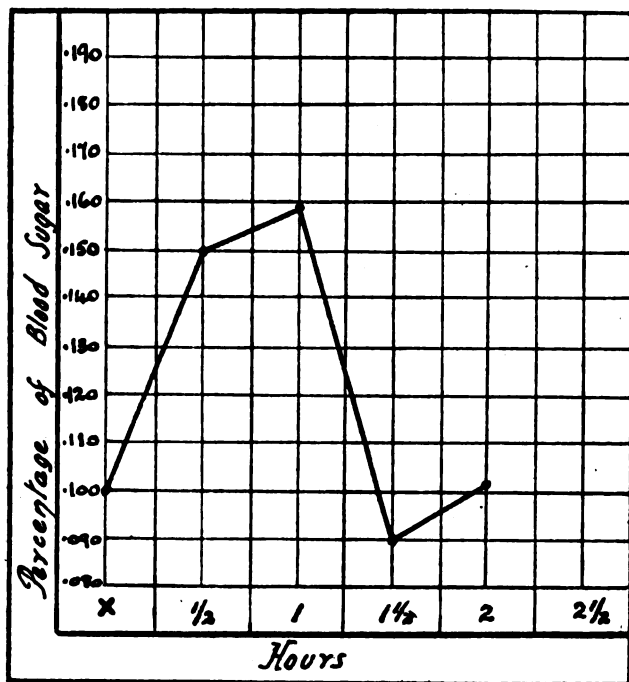


FIG. 1.—Normal curve.

The first hypothesis is put out of court by a consideration of the long-continued steady rise and the slow decline of the blood-sugar in cases of diabetes. The fact that larger doses of glucose do not have a proportional effect in raising the blood-sugar also speaks against this view (3).

For the second suggestion, that the disappearance of sugar is due to an increased glycolysis, there is no evidence. The fact that no such glycolysis occurs in the blood itself has been proved by studying the rate at which sugar disappears from the blood during its incubation under sterile conditions outside the body (4). Furthermore, this method of disposing of the excess of sugar is, *a priori*, unlikely, being wasteful and unphysiological.

We are left with the third alternative, and must assume that the marked fall in the normal curve is due to the sudden intervention of a storage mechanism which removes the sugar from the blood more quickly than it enters, and, as a result, masks the later stages of absorption.

This storage mechanism is controlled by the pancreas through the agency of its internal secretion, insulin. The hormone insulin facilitates the storage of glucose by the muscles and liver, and at the same time makes possible its utilization by the tissues (6). The chief site of storage is probably the liver, and we have often speculated in certain of our cases if the abnormality of the curve were not due to a deficiency in liver function rather than a failure of insulin production. The amount of insulin produced by the pancreas is regulated by the concentration of sugar in the circulating blood, the islets of Langerhans being stimulated to special activity when the percentage of blood-sugar rises to 0.16 or 0.17; but there are in health considerable individual variations in the sensitiveness of this pancreatic response.

CRITERIA OF NORMALITY.

Before passing on to a critical examination of the curves found in different forms of insanity, it will be well for us to examine and define what constitutes a normal sugar tolerance curve (Fig. 1).

In judging whether a curve is normal or otherwise we are guided by a consideration of the following points:

(1) *The fasting level.*—This level is considered to lie normally between 0.09 *per cent.* and 0.11 *per cent.*, on an average 0.1 *per cent.*—that is, 100 mgrm. of sugar per 100 c.c. of blood. We do not attach much importance to slight deviations from the standard figure for the fasting blood-sugar, as the work of Hansen (5) makes it clear that the fasting blood-sugar level is in health constantly fluctuating. These normal variations, however, are small, and any marked departure from the value 0.1 *per cent.* is of interest in itself.

(2) *Height of curve.*—After the ingestion of 50 gm. of glucose the blood-sugar should not rise above 0.18 *per cent.* In fact it has been found practically impossible in normal individuals to raise the blood-sugar percentage above 0.2, no matter how great the dose of glucose (3).

(3) *Fall of curve.*—In a typical normal curve the blood-sugar attains its maximum concentration in from half to one hour, and returns to or below the starting level within two hours after the ingestion of 50 gm. of glucose.

Any failure on the part of the curve to return to starting level within two hours is the surest indication of abnormality.

The renal threshold spoken of by MacLean appears to be very variable in the insane. In the normal it is said to lie at the average level of 0·18 *per cent.*, but in some of our cases the blood-sugar concentration rose to 0·25 *per cent.*, and even higher, without any sugar being demonstrable in the urine.

SELECTION OF CASES.

In our choice of cases we have endeavoured to select typical examples of the several forms of insanity, and no case in which the diagnosis was in doubt has been included in a group.

The majority of the cases have been acute recent admissions.

A fair number of cases which did not readily admit of classification have also been examined because of their individual interest, whilst for purposes of comparison we have obtained curves from five nurses and five attendants chosen for their apparent normality.

Epilepsy.

The blood-sugar curves in epilepsy approximate closely to the normal. Of the fifteen cases we have examined in only one did the curve show any gross abnormality, this being in a male patient (No. 73), who had a severe fit immediately after the fasting determination had been made. His graph (Fig. 2, curve 1) shows that the blood-sugar concentration rapidly rose to 0·293 *per cent.*, and nearly as rapidly fell to 0·127 *per cent.*, giving a typical "church-steeple" appearance to the curve.

Our results agree closely with the conclusions arrived at by other investigators.

We would especially refer to an exhaustive paper published by Holstrom (7), and abstracted by Dr. Smith Jelliffe, of New York, in the *British Medical Journal*, March 15, 1924, p. 506.

For purposes of comparison we show two other epileptic curves (Fig. 2, curves 2 and 3).

General Paralysis.

We have examined four cases of late first stage general paralysis. The curves are instructive. They resemble each other in shape, being of the "church-steeple" type. The greater height to which some reach appears to be associated with the degree of confusion and restlessness present.

They present features similar to those found in certain types of manic-depressive insanity, which, of course, they resemble clinically.

Thus Case 14 (Fig. 3, curve 4), was quiet and not confused. He soon entered the second stage, and is now fat and fatuous.

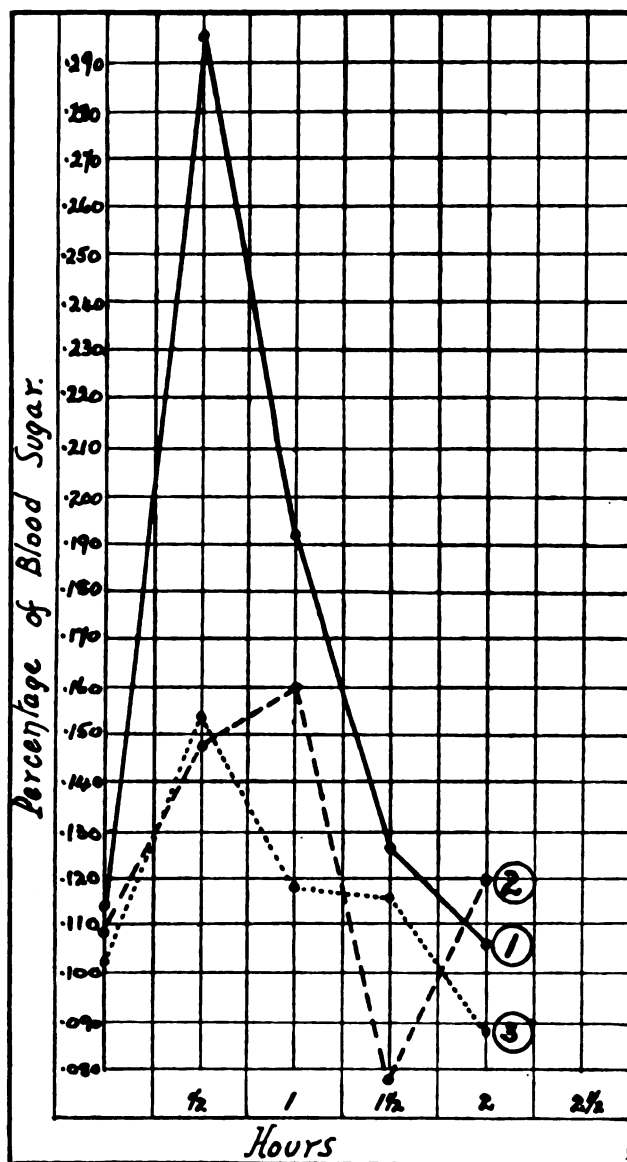


FIG. 2.—Curves 1, 2, 3: Epilepsy.

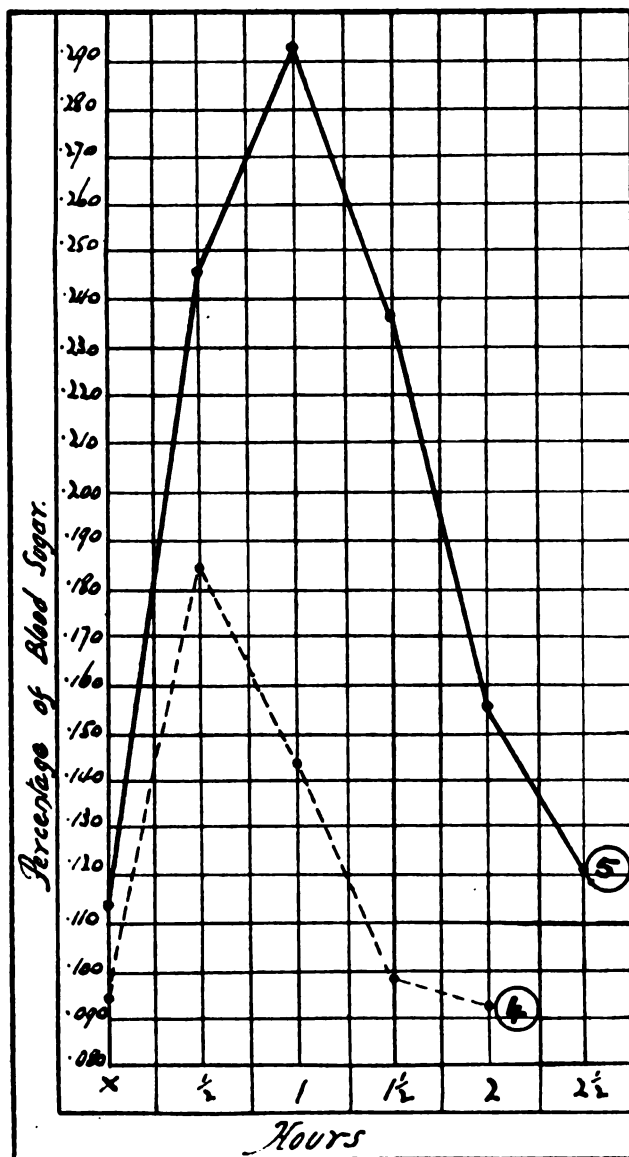


FIG. 3.—Curves 4, 5: General paralysis.

No. 12 (Fig. 3, curve 5), on the other hand, was a noisy, restless, wet and dirty case, who ran a very rapid course, dying four and a half months after admission.

Delusional Insanity.

We regret that we cannot put forward any results for this group, because of the lack of co-operation on the part of the patients. They were so ready to attribute to us ulterior motives for the procedure and viewed the apparatus with such suspicion that after several failures we did not persist in our efforts.

Confusional Insanity.

In discussing our results in this group, our chief difficulty has been to decide what cases ought to be included in it.

The diagnosis "confusional insanity" is always vague and unsatisfactory, and is very often wrongly made. However, it would be out of place in this paper to attempt an exhaustive discussion or classification of the confusional states. We use the term "confusional insanity" as synonymous with "infection-exhaustion psychoses," and as corresponding roughly with the "confusion mentale proprement dite" of French authors and the "Akute Verwirrtheit" of Kraepelin.

We include in this group cases of true puerperal insanity, but we have taken pains to exclude all those cases of manic-depressive insanity and of dementia præcox which exhibit a transitory phase of confusion.

From a consideration of the curves (Figs. 4 and 5) of the five cases that we finally decided to classify as instances of confusional insanity, it will be observed that in no case does the curve return to the starting level in two hours. It is also interesting to note that the fasting level is always within normal limits. This latter feature contrasts sharply with certain cases of manic-depressive insanity, where the fasting level tends to be high.

Although we have examined far too few cases to generalize, we have nevertheless found a study of the blood-sugar curves in states of confusion an aid to diagnosis. Whenever we find a rapid fall of the curve to, or near to, the starting level within two hours, we feel confident that we are not dealing with a case of true confusional insanity. The converse, of course, does not hold true.

Case No. 13 (Fig. 5), a married woman, æt. 45, admitted August 1, 1923, is a good example of confusional insanity, and her graph indicates the effect caused by an injection of 10 units of insulin. The fasting level is normal, being 0.091 per cent. After

the ingestion of glucose the curve mounts steadily but slowly, reaching 0.275 *per cent.* in $1\frac{1}{2}$ hours. The decline is also slow and prolonged. At two hours—when the normal reaches stability—this curve was still 0.222 *per cent.* At three hours, when the experiment ended, the percentage was 0.195. Mentally she was acutely confused and disorientated, mistaking the identity of everyone,

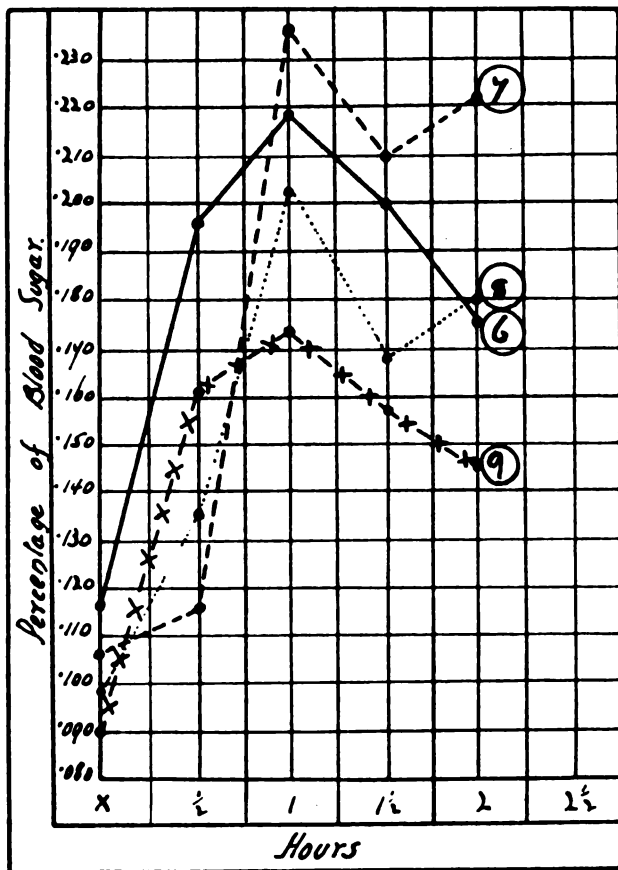


FIG. 4.—Curves 6, 7, 8, 9 : Confusional insanity.

resistive and noisy. She had had a mental breakdown following confinement in 1901 and recovered. On admission she was suffering from a severe pyorrhœa.

A few days after the first curve was done this patient was given 10 units of insulin. Twenty minutes later she was given 50 grm. glucose in 150 c.c. water. The result of the insulin injection on the behaviour of the curve was startling, as also its effect on the

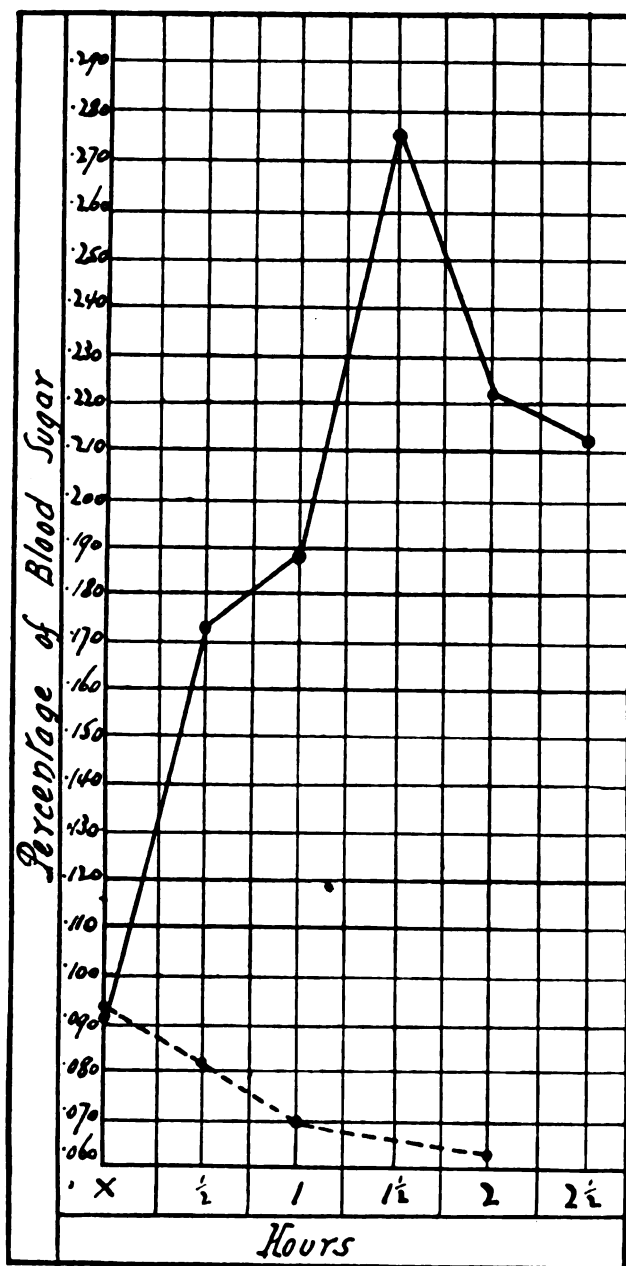


FIG. 5.—Confusional insanity, with and without insulin. - - - With insulin.
 — Without insulin.

behaviour of the patient. At the beginning of the experiment she was talking volubly and continuously in a rambling, incoherent fashion, ranting and declaiming like a convert at a revivalist meeting, stamping on the floor and upsetting the furniture. As the test proceeded, and incidentally, as the percentage of blood-sugar fell, as shown in the lower curve, she became quieter and quieter. Her confusion cleared to a great extent, her conversation became rational, and after two hours she was in a definite state of mild hypoglycæmia, complaining of drowsiness. She was then given some food, and shortly afterwards she had returned to her previous state of confused excitement.

During the two months the woman had been in the hospital prior to the test she had seldom slept more than two hours in spite of sedatives of all kinds. On the evening of the second test she was given 0.2 c.c. insulin and slept soundly for seven hours.

We had visions of an insulin treatment for states of excitement, but unfortunately during the ensuing ten days the injections of insulin gradually lost their effect, and she now remains noisy, excited and confused.

Manic-Depressive Psychoses.

For purposes of classification we have adopted Kraepelin's (8) definition of manic-depressive insanity.

We have been careful to exclude states of excitement and depression, which are often merely forms of expression of arterio-sclerosis and of other psychoses, such as dementia præcox, general paralysis and the psycho-neuroses.

Manic-depressive insanity as conceived by Kraepelin is a very wide and heterogeneous group, and we have found it impossible with the number of cases we have examined to make any satisfactory classification on the basis of sugar-tolerance curves.

We recognize how tentative and provisional any results must be that are based on our small series of thirty cases.

However, it would appear that the curves found in manic-depressive insanity may be roughly divided into three main types:

- (1) "Church-steeple" curves—*i.e.*, those that rise to a great height and fall abruptly to or close to fasting level within two hours (Fig. 6, Curves 10 and 11). We consider this type of curve to be characteristic of alternating insanity (*folie circulaire*).
- (2) Small curves indistinguishable from the normal. This type we have found in hypo-mania (Fig. 6, Curves 12 and 13).

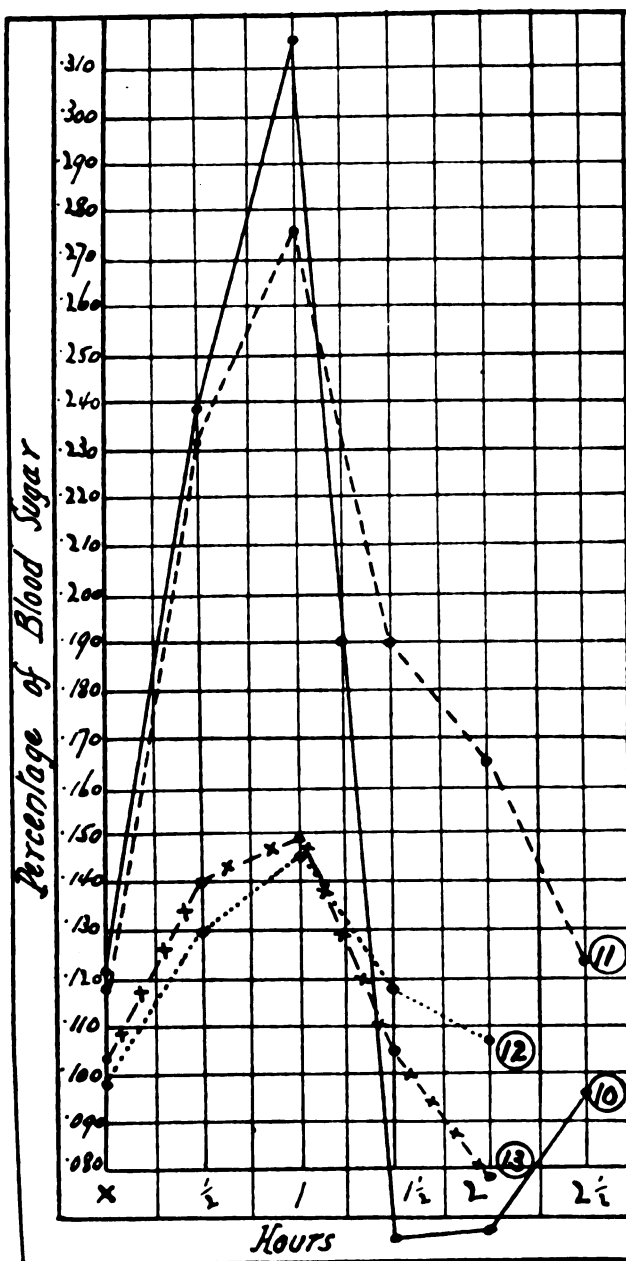


FIG. 6.—Curves 10, 11, 12, 13 : Manic-depressive insanity.

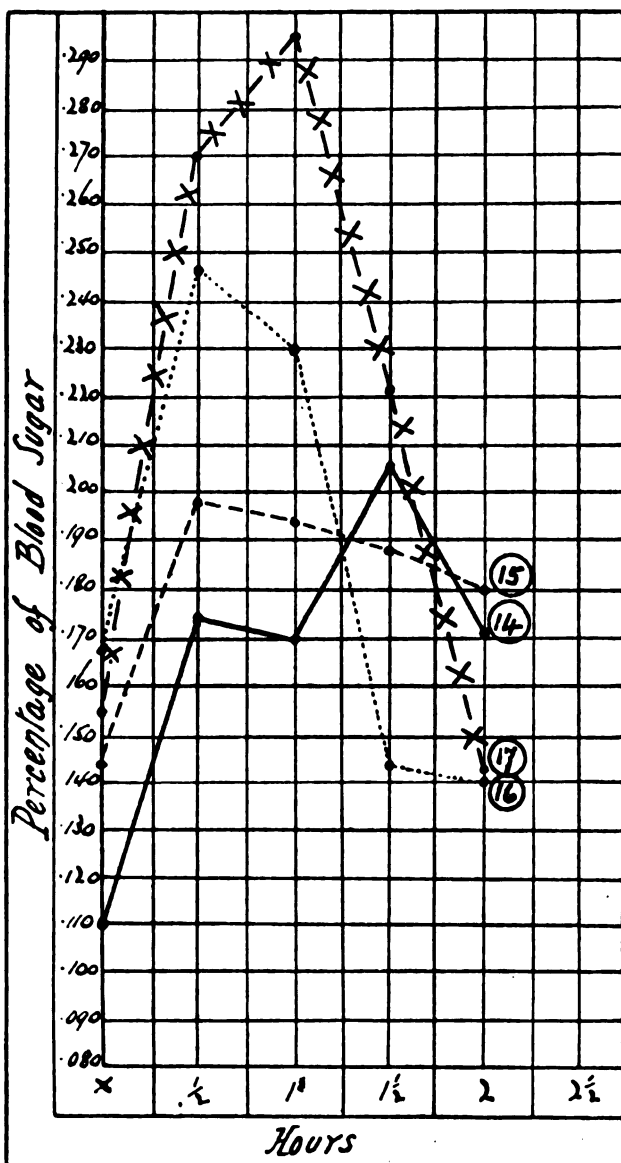


FIG. 7.—Curves 14 and 15: Recent mania. Curves 16 and 17: Involucional melancholia.

- (3) Broad curves similar to those met with in confusional insanity, where, at the expiration of two hours, the curve is well above fasting level. In our experience this type of curve has occurred in first attacks of mania in young persons and in association with considerable mental confusion (Fig. 7, curves 14 and 15).

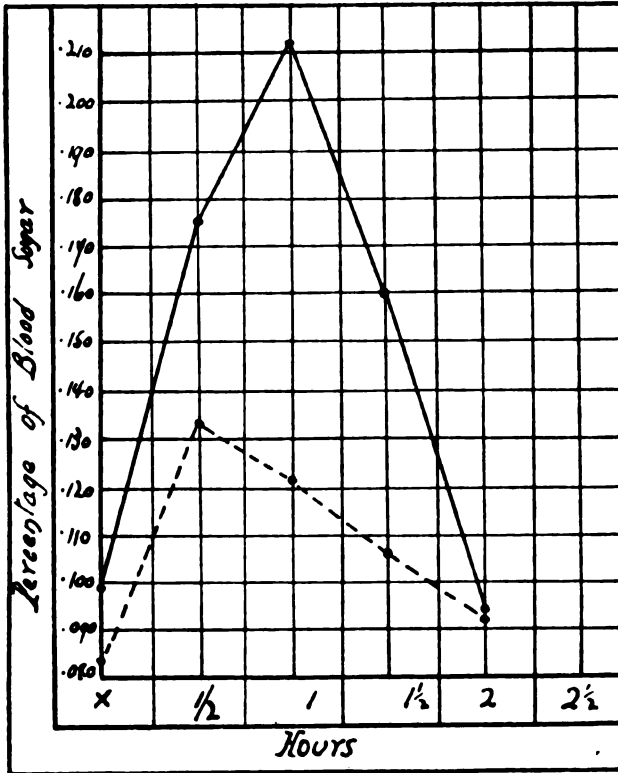


FIG. 8.—Mania and recovery. ——— Acute. - - - Recovery.

Cases of melancholia occurring about the climacteric appear to be characterized by a high fasting level of the blood-sugar (Fig. 7, curves 16 and 17).

Low sugar tolerance is found in melancholia more frequently than in any other psychosis we have examined.

When re-testing some of our cases on clinical recovery we have invariably observed a marked diminution in the height, and sometimes a change in the form of the curves (Fig. 8).

Dementia Præcox.

In our delimitation of dementia præcox we have followed Kraepelin (9); but we are not of the opinion that there is anything to be gained by subdivision into a large number of clinical forms.

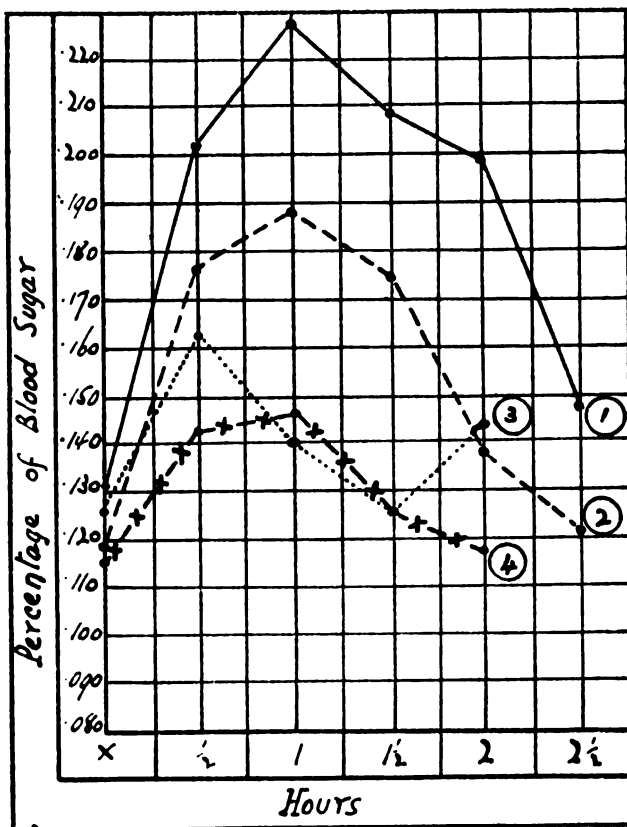


FIG. 9.—Primary dementia, composite curves. 1. — Female, acute. (2) - - - Male, acute. (3) Female, chronic. (4) - x - x - x Male, chronic.

For the purpose of this paper we have classified our 18 cases according to their acuteness or chronicity rather than into clinical groups, for, from the cases examined, we have obtained a profusion of different types of curves, making analysis extraordinarily difficult.

Four points of interest, however, emerge from a review of the findings:

- (1) Acute cases give very high and rather broad curves suggestive of the confusional type.

- (2) Female acute cases give higher curves than male acute cases.
- (3) Chronic cases tend to give small low curves.
- (4) Again, the male chronic cases are lower than the females.

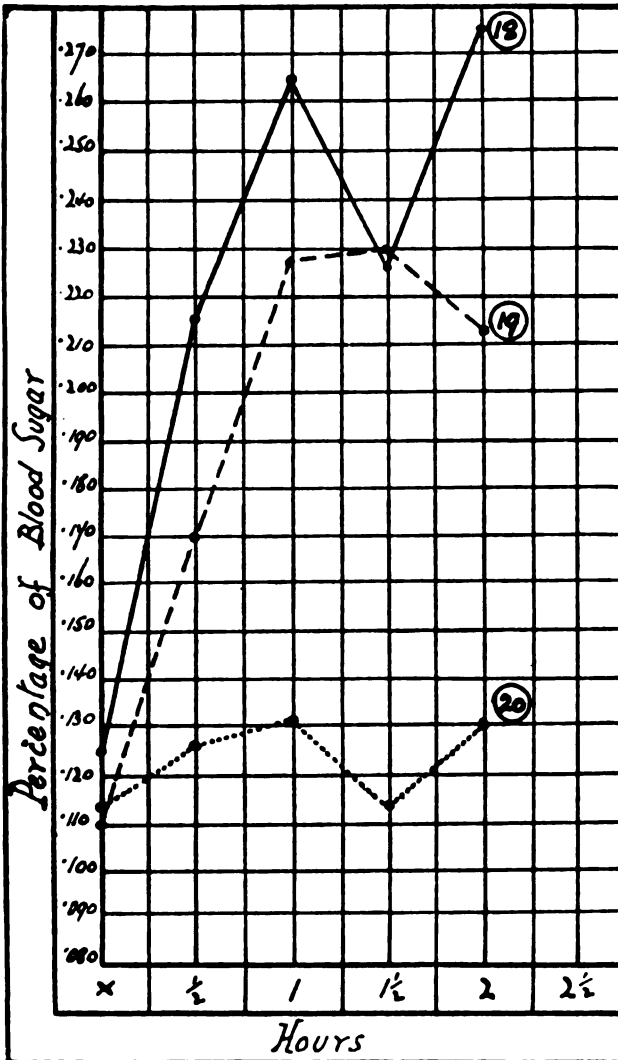


FIG. 10.—Curves 18, 19, 20: Primary dementia.

We give (Fig. 9) composite curves showing clearly these four points, and also curves of an acute female case (Fig. 10, curve 18), an acute male case (Fig. 10, curve 19), and a chronic male case (Fig. 10, curve 20).

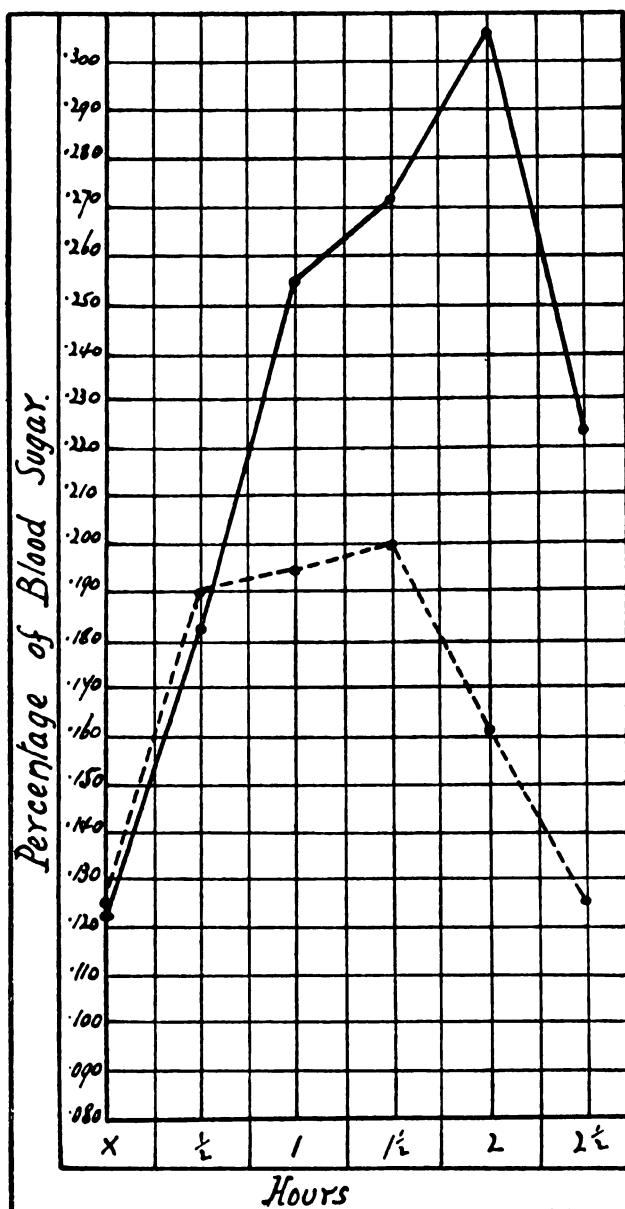


FIG. 11.—Primary dementia and remission. ———. Acute. - - - - Remission.

Fig. 11 shows Case 20 when in a very acute stage, and also when the condition had changed to one of remission. The difference in the curves is very marked.

Climacteric Psychoses.

The disorders of the sympathetic nervous system which occur at the climacteric in connection with involution of the genital functions appear, as is not surprising, to be associated with a considerable disturbance in the sugar metabolism. In illustration of this we should like to quote the following two cases (Fig. 12, curves 21 and 22).

Curve No. 21 is that of a married woman, æt. 51, suffering from obsessions. For example, she says: "In October I began to think I had poisoned people; at times my head became clearer and I knew I hadn't done so, but later the idea kept coming into my head all the time that I had. One day I looked at the floor and I got it into my head that I had killed someone and buried them under the flooring boards, etc." When she entered the laboratory she kept her hands over her eyes to shut out the sight of the "poison" bottles. Though she is stout and in apparent good health, she complains of all sorts of unpleasant sensations and vague pains. For example she says: "The inside turns all the while, it prickles." She suffers from hot flushes, and at times she has seizures of a functional character.

Curve No. 22 is that of a female, æt. 53, married, suffering from a series of delusions, mainly of a hypochondriacal nature. Says, "My throat has been most terrible, and what makes me grieve so is the fact that my husband and children have been taken with bad throats too, and won't go to the doctor—I have blotches come out on my arms and the pain up my legs is terrible, etc."

She is a well-nourished but flabby woman and is pale and unhealthy looking. She suffers from severe sweats, and often shows a patchy erythematous eruption. She is much troubled by "hot flushes," and is usually tearful, emotional and hysterical.

A consideration of the curves shows that the fasting level is high, the curves rise to a quite abnormal height, and at the end of two hours are still much raised.

Pancreatic Psychoses.

Under this heading we propose to discuss our findings in two cases which were characterized by many of the bodily signs and symptoms of diabetes, and by the mental symptoms of agitation and anxiety.

Curve 23, Fig. 13, painter and decorator, æt. 58, was admitted on February 4, 1923. Mentally very confused and lost. Fearful, apprehensive and anxious, very restless and agitated. Cowering

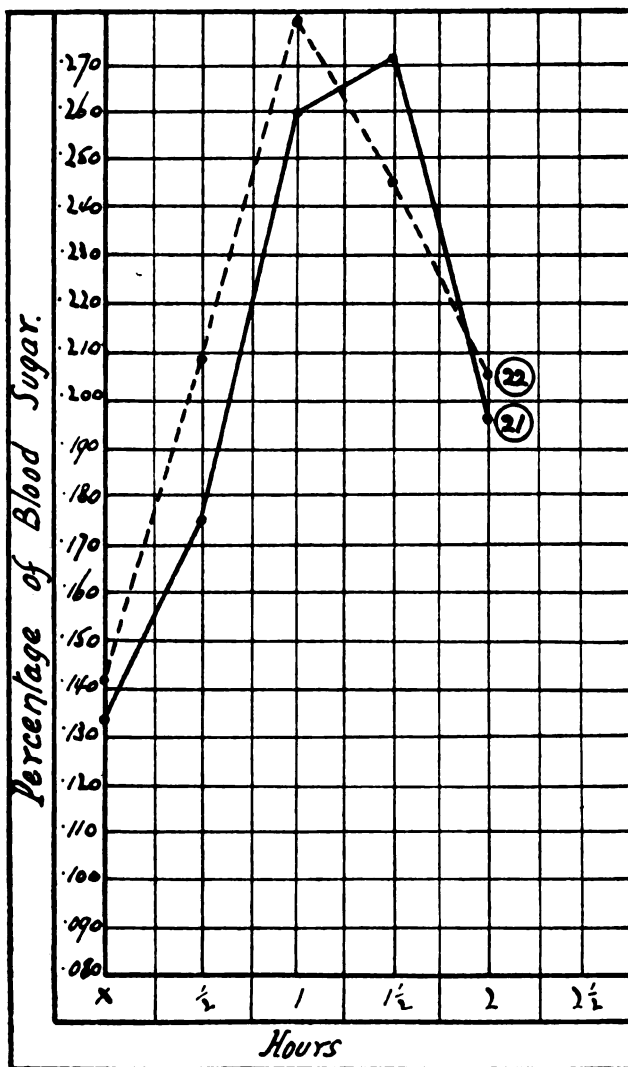


FIG. 12.—Curves 21, 22: Climacteric psychoses.

in a corner if anyone went to speak to him, preferring to be in a padded room by himself. Sugar in varying quantities up to 2.5 per cent. was present in the urine throughout his illness, and the glycosuria was associated with carbuncles and boils. After the

first few days his appetite was inordinate—"eating all before him." His blood-sugar curve was taken on September 16, 1923. He died on September 20, 1923, remaining agitated and apprehensive to the end.

The curve starts at $\cdot 109$ per cent. At the end of the third

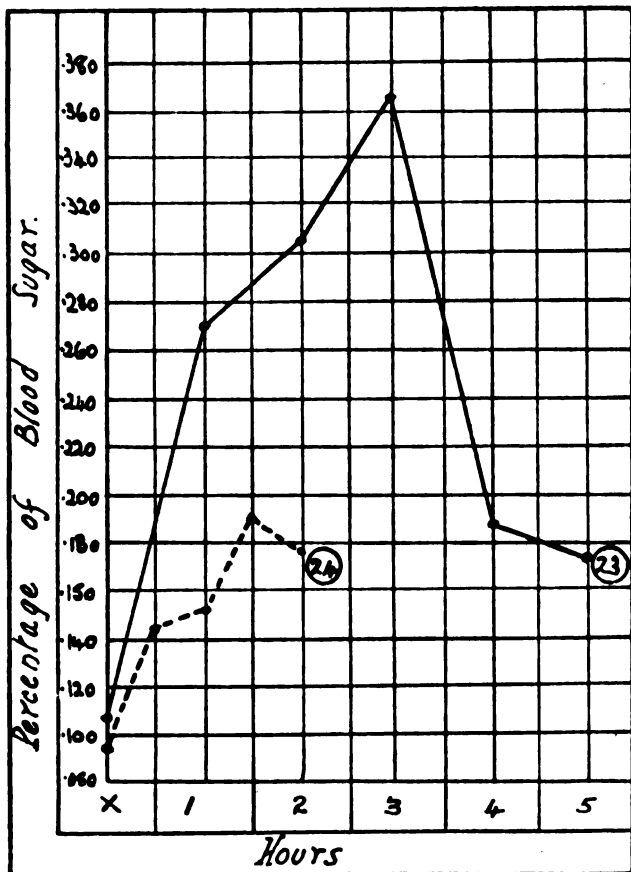


FIG. 13.—Curves 23, 24 : Pancreatic psychoses. (Note : This is half the scale of the previous graphs.)

hour it was still rising, being respectively $\cdot 270$, $\cdot 305$ and $\cdot 367$ per cent. At the end of the fourth hour there was an abrupt fall to $\cdot 189$ per cent.; an hour later it had declined to $\cdot 176$ per cent., when the test ended.

It is clear from a consideration of the curve that though the carbohydrate metabolism is grossly disordered, it is not a true case of diabetes, as there is a sharp pancreatic reaction at the end of the

third hour. The curve falls abruptly instead of tailing off indefinitely like a true diabetic one. It will be noted that even at the end of the fifth hour the blood-sugar has not returned to the initial level.

Post-mortem.—Macroscopically there was evidence of chronic duodenal catarrh; the tail and portion of the body of the pancreas were obviously abnormal, being of a different colour and consistency to the head, which appeared comparatively healthy.

Microscopically there was considerable necrosis of the pancreatic cells and an increase of the interstitial fibrous tissue. The cell islets of Langerhans showed considerable fibrosis in the affected parts.

The case is interesting on account of the association which it presents of an anxiety psychosis with a pancreatitis seen at *post-mortem* examination, thus bringing it into relation with the group of cases described by Lovell (10) in his important paper, "The Surface Tension of the Serum in Anxiety Psychoses," in which he advances the theory that a large number of anxiety cases are due to a disordered endocrine balance, in which the pancreas is primarily at fault.

With this view we fully agree, as it harmonizes with our own experience derived from a study of five cases terminating in death from pancreatitis.

In each of these cases the dominant mental symptoms were restlessness, agitation and anxiety.

Curve No. 24, Fig. 13, is that of another case very similar to the last, a house-painter, æt. 57, admitted in July, 1922. Mentally he was confused and apprehensive, exhibiting real terror when spoken to or examined. Abnormal hunger and thirst and also small quantities of sugar in the urine were present for the first eleven months. He gradually lost weight and became very emaciated till, in June, 1923, he rapidly put on flesh, and at the same time sugar disappeared from his urine. His mental state also improved, and is now one of simple dementia.

Unfortunately we were unable during the acute stage of his illness to make blood-sugar determinations.

CONCLUSIONS.

The primary object of our research has been attained, that is, the demonstration that in a large proportion of cases the blood-sugar curves found in the insane vary greatly from the accepted normal.

While we feel that we have only touched the fringe of an immense

and uncharted field, we are of the opinion that we have arrived at several interesting conclusions :

1. That the general metabolism is far more disordered in insanity than one would be led to believe by casual observation.

2. That in many cases where the metabolism would appear to be normal it is in fact greatly upset.

3. That amongst the mental symptoms, confusion and melancholia are associated with the greatest disturbance of the sugar metabolism ; whether this is *post hoc* or *propter hoc* remains to be seen.

4. That the sugar metabolism in epilepsy, in the quiet stages, approximates most closely to the normal.

5. That the renal threshold level is very variable, and consequently that from the absence of sugar in the urine one cannot draw any conclusion as to the fasting level percentage of sugar in the blood.

Finally, we would like to express our thanks to Capt. S. A. Mann, Biochemist to the Maudsley Hospital, for much valuable advice, and to Dr. B. H. Shaw, Medical Superintendent of the County Mental Hospital, Stafford, for his encouragement and permission to make use of the clinical material.

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The Malarial Treatment of General Paralysis; Some Psychological and Physical Observations.⁽¹⁾ By G. DE M. RUDOLF, M.R.C.S., L.R.C.P., D.P.H., Assistant Medical Officer, Claybury Mental Hospital, Essex.

NUMEROUS articles have appeared within the last few months in both Continental and English literature describing the value of the malarial treatment in cases of general paralysis. Thus Yorke and Macfie (13) state that out of 84 general paralytics treated with malaria, 23 (or 27·4 *per cent.*) had been, or were about to be, discharged, at the time of writing, from the mental hospitals. Weygandt (12) in 50 cases obtained good remissions in 48 *per cent.*, and Kirschbaum (5) in 51 in 58·8 *per cent.* Scripture (9) states that in Wagner-Jauregg's clinic complete remissions were obtained in 44 *per cent.* out of 141 cases treated. This percentage of complete remissions is still being maintained, Gerstmann (14) reporting recently that 40 *per cent.* show complete remissions with ability to work, 30 *per cent.* improvement, and 30 *per cent.* no improvement. If only early cases are treated Wagner-Jauregg (10) states that nearly 100 *per cent.* of cures can be obtained. These figures compare very favourably with the percentage of spontaneous remissions recorded by Kirschbaum. This writer found that spontaneous remissions occurred in only 11·4 *per cent.* of untreated general paralytics. At present it is too early to make any definite statement with regard to the permanence of the remissions, although the three oldest successful cases in Wagner-Jauregg's clinic have now shown complete remissions for 6½ years.(14)

The improvement following the malarial treatment is progressive. It extends over many months, and it is, therefore, impossible to form an accurate estimation of the value of the treatment in any one case until a considerable period has elapsed since the cessation of the rigors.

Up to the present time 73 inoculations have been performed at Claybury Mental Hospital, but it is proposed in this paper to deal with only 31 of these cases, for these 31 patients have now been watched for some months since the cessation of their rigors, whereas the remainder have been inoculated more recently. Of this series of 31 cases, 16 were females and 15 males. The cases in this series have now been watched for periods varying from 2½ to 14 months after the cessation of the rigors. The same strain of benign tertian parasite (*P. vivax*) was used throughout, and all inoculations

(1) A paper presented at the Quarterly Meeting held in London, November 20, 1924.

were by the subcutaneous route. Two cases in the series were inoculated by Lieut.-Col. S. P. James by means of mosquitoes. Neo-kharsivan injections were given in a few cases, the majority having quinine only.

PSYCHOLOGICAL OBSERVATIONS.

(a) *Delusions of grandeur*.—Grandiose ideas show a marked tendency to disappear following malarial treatment. The manner in which they do so is interesting. If the delusions are of a quantitative nature, the patient stating definite numbers, these numbers become progressively smaller after the cessation of the rigors. Six such instances are described below.

i. A female patient stated on March 26, 1924, that she possessed two or three thousand diamonds. She was inoculated with malaria, the last rigor occurring on May 24. On the 31st of the same month the patient stated that she had twelve diamonds. On August 14, ten and a half weeks later, she said that she possessed no diamonds and that she could not have known what she was saying when she said that she possessed twelve diamonds.

ii. On August 12, 1924, a male patient stated that he owned two hundred motor-cars and that he paid his brother-in-law £50 a week to take care of them. The malarial rigors occurred from August 29 to September 5. On September 10 the patient stated that he owned two or three motor-cars, for which he paid his brother-in-law £50 a week to take care of. At this stage one delusion, that referring to the motor-cars, had diminished in intensity, whilst the other had not done so. A similar disparity between the disappearance of the grandiose delusions occurred in Case iv below. On October 11 the patient stated that he had sold his cars, numbering four or five, and that when his brother-in-law had been taking care of them he had paid from him £10 to £15 a week. On November 9 the patient stated that he owned two or three cars. He did not know how much his brother-in-law was receiving, as the patient's wife was paying him.

iii. A male paralytic stated on June 14, 1924, that he had bought four shops. On June 17 he added that he was going to build 10,000 houses and that he had millions of pounds. Malarial treatment ceased on August 3. Eleven days later the patient was indefinite as to how much money he possessed, saying that he had £17,000, or "two or three thousand pounds." He was, however, quite definite that he was going to build a hotel and that he owned five or six tobacco shops. On September 13 he stated that he was going to open three tobacco shops. The number became less and the past tense became the future. He added, however, that he was going to build six houses, not 10,000 as he had stated in June. Asked if he had the necessary money with which to carry out these schemes, the patient stated he would proceed on credit. He said that all his previous remarks about money "must have been dreams." On October 14 the patient stated that he had been going to open two tobacco shops, but as his wife did not want him to do so he had given up the idea. He was going to open them on credit.

iv. On May 29, 1924, the patient, a male, stated that his usual score at cricket was 154 runs. On June 2 he said that he was going to claim and receive £500,000 as compensation for a previous accident. On August 3 he gave his usual score at cricket as being from 150 to 160 runs, but did not know how much he was going to claim as compensation for the accident. Rigors, which had commenced on July 27, terminated on August 9. On September 2 the patient's average score was about 100 runs, and he was going to claim from £100 to £1,000 as compensation. On October 2 the average score was from 80 to 100 runs, and the patient expected that his society would claim about £100 as compensation. On November 14 the patient stated that he had sometimes made between 80 and 100 runs. He was not going to claim compensation for the accident, as the employers under whom he had had the accident had offered him a situation for life.

It is worthy of note in this case that although the figures dealing with the number of runs progressively decreased after the malarial treatment, the patient gave a different score at different interviews. Thus in May and August he gave his *usual* score, in September and October he gave his *average* score, but in November he gave a score he had *sometimes* made.

v and vi. Case v believed he was a great athlete, able to jump to very great heights and to swim rapidly. Case vi believed that he was a famous comedian who was able to earn large salaries on the music-hall stage. The progress of the delusions in these two patients is shown below. Column 1 gives the height to which patient v stated he was able to jump. Column 2 shows the speed at which the same patient stated he could swim. Column 3 gives the weekly earnings which patient vi stated he was capable of earning on the music-hall stage.

Patient v.			Patient vi.	
Date.	Col. 1.	Col. 2.	Date.	Col. 3.
13.4.24	3 miles	—	25.3.24	£250
29.4.24	5,000 ft.	—	28.3.24	£100
5.5.24	—	100 yds. in 5 secs.	4.4.24	£1,500
22.5.24	Rigors ceased		26.4.24	£8,000
26.5.24	8 ft.	—	20.5.24	Rigors ceased.
2.6.24	5 ft. 7 in.	—	1.6.24	£500
—	Mild seizure.		5.6.24	£300
14.6.24	6-7 ft.	4 m.p.h.	Previous to	£8
12.7.24	—	5 m.p.h.	3.7.24	See below.
11.8.24	10 ft.	8 m.p.h.	24.7.24	
11.9.24	7 ft. 8 in.	2½ m.p.h.	—	
11.10.24	9 ft. 14 in.	3 m.p.h.	—	
10.11.24	10 ft.	3 m.p.h.	—	

The above table shows that, following the mild seizure which patient v suffered, the grandiose delusions, as regards the power of jumping and swimming, increased slightly in intensity. At the same time the speech, which had become less slurred, became markedly so, the tremor, which had greatly diminished in the tongue, again became prominent, and a double carpo-metacarpal reflex appeared for the first time. The patient still retains the delusion, which was present on admission, that he is King of England.

Although patient vi was very ready to discuss his prospects upon the music-hall stage, he became irritated on being questioned about this subject on July 3. Three weeks later, on again being questioned, he stated that his idea of going on the stage "was all a delusion." His occupation was that of a kennel-man. This case shows very clearly the quantitative increase of the delusions before the malaria treatment and the decrease after it.

The following case is described as showing a gradual decrease in intensity of the grandiose delusions following malarial treatment, but the ideas were not expressed numerically:

The patient, a postman, stated on January 11, 1924, that he had been promised the position of Postmaster-General. Rigors ceased on March 3. Twelve days

later the patient stated that he could be made Postmaster-General if he appealed to the King. On March 22 he was thinking of applying for the position on his leaving Claybury Mental Hospital. On the 29th of the same month he had decided not to apply for the position. Asked why he had changed his mind, he stated that he would be amongst people of a higher social status and so would not be happy, adding, "Money is not everything." Seven days later he made a similar statement, whilst still later he declared the whole idea was "ridiculous." Although, during the period of his delusions, the patient made no mention of money, yet when he had returned to an apparently normal mentality he stated that he could remember thinking that he saw heaps of gold around him, and that he could possess the gold by putting out his hand. When he stated this he realized it had been a delusion.

When the patients were being questioned about their delusions, care was taken to exclude suggestion as far as possible. It is unfortunately impossible to exclude it absolutely. When no definite number was given by the patient he was asked to state an approximate number.

(b) *Desire to escape*.—When the female patient is compared with the male, a striking difference is observed in the mental condition shortly after the cessation of the rigors. In the great majority of male patients an intense desire to leave the hospital manifests itself. This desire has occurred in no females in the series under review. The intense desire to leave is abnormal in that the patient thinks he can leave, not by being discharged in the routine manner, but by either his friends fetching him away, or by a nurse unlocking a door for him to go through. He asks the very people who are keeping him in the hospital to let him out, apparently not even thinking that it would be extraordinary for them to do so. In the most advanced stage of this condition the patient does not attempt to hide his desires, although as the condition passes off he may attempt to do so. The patient is exceedingly persistent in his demands to be let out. It would appear that the desire for release is present, but not the intelligence necessary to realize the manner of escape, or discharge, that would be most likely to be successful. This abnormal desire to escape passes off gradually, to be replaced by a normal desire to be discharged in the usual routine manner.

(c) *Amnesia*.—A comparatively common feature of the post-malarial stage of the treatment is a period during which the patient shows a definite loss of memory. The loss of memory refers to the time during which the patient was mentally acutely ill. Usually the period before admission can be remembered, and also the period from the end of the malarial rigors up to the time of examination. The period of amnesia may not include the febrile paroxysms. Outstanding incidents as, for instance, lumbar puncture occurring during the amnesic period may be remembered. Several months after the rigors, however, the patient may regain memories of the previously amnesic period. As a general rule the delusions are not remembered once they have disappeared, although the memory

may be good for events occurring during the period when the delusions were present.

(d) *Well-being*.—Immediately following the cessation of the rigors many patients experience a feeling of pronounced physical health. This is not the common euphoria of the general paralytic, but appears to be of a more normal character. It is less boastful. The patient, without being asked, volunteers the statement that he has not felt so well for two or three years, or whatever period has elapsed since he last felt so well. The untreated general paralytic has always felt well, not only recently. The feeling appears to be of more modest dimensions than is the common euphoria of the untreated patient. It persists after the mental condition has become normal. No doubt this feeling is, in the male, the cause of the desire to escape. The patient, feeling so well, is sure that he is fit to leave the hospital. His mental condition is such, however, that he is unable to realize that the correct mode of procedure must be followed in order to obtain his release.

(e) *Other manifestations*.—Following the rigors, attacks of excitement or depression become progressively less frequent and less severe, and may eventually disappear. During the rigors some patients become more restless and excited. Orientation, previously incorrect, may become accurate after the malarial paroxysms.

PHYSICAL OBSERVATIONS.

I. GENERAL.

(a) *General appearance*.—The general appearance of the patient improves greatly after the rigors. A previously untidy, dirty patient becomes clean and careful over his personal appearance, taking great care over brushing his hair, polishing his boots, and keeping his clothes clean. Treated patients usually become more attentive and helpful to patients in a worse condition than themselves, apparently becoming less important in their own estimation.

(b) *Complexion*.—The skin of the untreated general paralytic often has a pale, somewhat earthy appearance. It is dry and coarse. A few weeks after the cessation of the rigors the pallor passes off, and the cheeks become red and the texture of the skin regains its normal appearance. A month or two after the rigors a flushing, or over-reddening, of the face occurs in most cases. In one case in which physical and mental improvement was delayed for some months the flushing of the face was also delayed. This flushing resembles that of polycythæmia, except that the blue element which is present in cases of the latter disease is absent. Perhaps the most suitable description consists in saying that the facies.

resembles that of a healthy person who has held his head down for a few minutes. This flushing of the face persists for a number of days, and then passes off gradually, to be replaced by a more normal colour.

(c) *Temperature*.—Some cases of general paralysis show an irregularly raised temperature, apparently persisting indefinitely. The elevations of temperature may consist of a sudden rise, occasionally to 104° F., returning to the original level within a few hours; of an irregular temperature, sometimes rising above normal every evening, thus resembling a tuberculosis fever; or of rises that become progressively greater each day and then smaller. These elevations of temperature have been observed upon 4-hourly charts, and do not always show on twice-daily charts.

Following the malarial rigors these elevations of temperature usually disappear, the 4-hourly chart showing a fairly steady, subnormal temperature. In one such case the temperature rose above normal, usually in the evening, on 124 days during an observation period of 138 days. Frequently the rise of temperature reached 101° F., and occasionally 103° F. The malarial rigors commenced on the 139th day, and since their cessation the temperature has remained subnormal for the last 77 days, not once rising above normal. Before the inoculation with malaria this patient was given quinine in order to determine whether this drug affected the rise of temperature. No effect was observed. As no other treatment was given it is clear that the malarial treatment was the cause of the cessation of the elevations of temperature.

(d) *Condition immediately following the rigors*.—At the termination of the rigors the patient is very anæmic; in one case the red blood-corpuscles fell to 1,700,000 per c.mm., and there is often, in addition, a trace of conjunctival jaundice. The latter disappears a day or two after the commencement of the course of quinine. In patients who received a course of neokharsivan in addition to the quinine, it was found that the normal red-cell count was reached three weeks after the cessation of the rigors.

After a patient had lain in bed for from two to three weeks and had undergone from eight to twelve rises of temperature to 104° or 105° F., usually accompanied by profuse perspiration, it might be expected that he would feel weak and be unsteady in his gait on first rising from his bed. In many patients this is far from the case. Little or no weakness is seen in patients who were comparatively strong before the onset of the rigors. The following case is of interest. The patient, a female, æt. 40, had a history of general paralysis of six years' duration. Since the end of March, 1924, she had been becoming progressively weaker, and had been continuously in bed

for four months before the onset of the malarial rigors. By this time, August 12, 1924, the weight of the patient had fallen to 6 st. 3 lb. from 8 st. 7 lb. in March of the same year. The malarial rigors terminated spontaneously on August 24. Six days later a relapse occurred, two rigors being allowed before the usual quinine course was commenced. The patient got up shortly after the second rigor. At this time she was too feeble to stand, and once, owing to her weakness, fell out of a chair. On September 22, only 18 days after getting up, the patient was dancing at a patients' dance. Beyond the usual course of quinine, consisting of 200 gr. in all, no treatment or alteration in diet was made. This case is instructive as showing the extraordinary physical improvement which may occur following the malarial treatment of general paralysis.

(e) *Menstruation*.—The majority of female patients treated have been approaching the menopause, but in two cases menstruation recommenced after the rigors, although it had been absent for many months before the febrile paroxysms. No general conclusion can be drawn from so few cases.

(f) *Weight*.—The weight of the untreated general paralytic varies with the stage of the disease. In the earlier periods there is usually a loss of weight, especially in the more excited types. A few months later the weight gradually increases, but only to be followed by a steady decrease preceding death.(1) It is therefore difficult to decide whether malarial treatment influences the body-weight to any great extent. During the rigors there is usually a marked loss in weight, but this is regained shortly after with no extra diet. MacBride and Templeton (6) have reported a case in which a gain of 20 lb. had occurred three months after the rigors. In one patient in the present series a gain in weight of 22 lb. occurred six months after the cessation of the rigors, but the weight was then no more than it had been earlier in the disease. The weights are shown below:

1923: June, 7 st. 7 lb.; September, 8 st. 8 lb.; December, 9 st. 10 lb.;

1924: March, 8 st. 2 lb.; April to May, rigors; June, 6 st. 7 lb.; September, 9 st. 7 lb.; October, 9 st. 7 lb.; November, 9 st. 10 lb.

In most cases the body-weight does not increase once the loss due to the rigors has been made up. On the other hand, it is only in cases with a very long history of general paralysis that the weight decreases after the treatment. In the majority of patients the weight remains stationary, once the loss due to the rigors has been remedied.

(g) *Work*.—Patients who before treatment refused to work, or

were unable to work on account of their poor physical condition, often became willing and energetic workers after the rigors. They may commence working immediately they get up from bed, or may not start until some weeks have elapsed, but in the majority of cases, although the mental condition may not have returned to normal, the patient becomes a ready worker in the hospital.

II. NEUROLOGICAL.

(a) *Tremor*.—In many cases the tremor becomes less marked after the cessation of the rigors, and in a few cases has disappeared completely. Similarly the speech becomes less slurred, and if the slurring was slight before the treatment it may cease.

(b) *Pupillary signs*.—In eight cases changes have been observed

Case 1.		Case 2.		Case 3.		Case 4.	
Date.	Reaction.	Date.	Reaction.	Date.	Reaction.	Date.	Reaction.
27.5.24	O	30.5.24	O	20.1.24	O	15.3.22	V.Sg.
14.8.24	Sg., Sp.,	2.7.24	O	26.3.24	Rt., S.R.	11.5.22	V.Sg.
4.9.24	C.R.	20.7.24	C.R.		L., O	12.3.24	C.R.
16.9.24	Sg., Sp.,	3.8.24	Rt., S.R.	24.5.24	C.R.	13.9.24	O
	but less		L., O	31.5.24	O	1.11.24	Rt., R.
	reaction	4.9.24	S.R., Sp.	13.9.24	O		L., S.R.
	on L.	12.11.24	S.R.	1.11.24	Rt., R.		
14.11.24	Rt., R.				L., O		
	L., S.R.						
Case 5.		Case 6.		Case 7.		Case 8.	
Date.	Reaction.	Date.	Reaction.	Date.	Reaction.	Date.	Reaction.
18.8.22	Sg.	5.9.22	Sg.	6.10.23	Sg.	30.3.22	Sg.
19.7.23	O	11.10.23	O	3.1.24	C.R.	26.10.23	C.R.
24.9.23	C.R.	31.10.23	O	3.1.24	Rt., Sp.	31.10.23	S.R.
18.10.23	S.R.	13.11.23	C.R.		L., R.	9.6.24	Rt., R.
31.10.23	R.	17.2.24	O	17.1.24	Rt., Sp.		L., Sg.
17.3.24	C.R.	28.5.24	O		L., R.	11.9.24	R.
15.6.24	R.	6.8.24	O	24.3.24	Rt., ? R.	15.11.24	R., Sp.
13.9.24	S.R.	8.9.24	O		L., R.		
12.11.24	R., Sp.	6.11.24	S.R.	28.6.24	Rt., Sg.		
					L., R.		
				11.9.24	S.R.		
				14.11.24	Rt., R.,		
					Sp.		
					L., R.		

C.R. = cessation of rigors; L. = left; O = no reaction; R. = reacts well; R. + = reacts briskly; Rt. = right; Sg. = sluggish reaction; V.Sg. = very sluggish reaction; Sp. = springing reaction; S.R. = reacts through small range. Where no mention is made of right or left the notes refer to both eyes.

in the reaction of the pupil to light following malarial treatment. These changes had not occurred when my former note was written(8). In no patient was the change for the worse. The foregoing table gives the details of the alterations that were observed to occur.

In the above table the term "springing reaction" has been confined to cases which showed a contraction of the pupil to the light, immediately followed by a dilatation, although the eye remained exposed to the stimulus. This springing reaction differs from Arroyo's asthenocoria (16), in that the contraction of the iris is not flabby or asthenic, the dilatation persists without being followed by further myosis and mydriasis, and the reaction is completed in from five to ten seconds. It would appear that the springing reaction cannot be due to a lack of tone in the sphincter iridis, for although the pupil dilates after the primary contraction, yet the final diameter of the pupil is, as a rule, smaller than was the diameter before the eye was exposed to the light-stimulus. This shows that the sphincter iridis is able to maintain a small degree of contraction. On accommodation, moreover, it is found that in most cases the pupil does not show a springing reaction. Contraction occurs normally and is maintained. There can therefore be no lack of tone in the sphincter iridis. If all pupils that showed the springing reaction gave a brisk initial contraction to the light-stimulus, the springing reaction might be due to a primary *over*-action, the subsequent dilatation of the pupil being an adjustment, of a more accurate nature, to the stimulus. Many of the pupils that show this reaction, however, present sluggish contraction and dilatation, so it is unlikely that an *over*-contraction occurred at first. It would, however, appear more probable that the failure to maintain contraction is due to faulty innervation of the pupil. This presumably would be due to a diminution of function of the afferent fibres of the light reflex arc in the neighbourhood of the aqueduct. The accommodation fibres in this region are far removed from those of the light-reflex arc (Kinnier Wilson) (3, 4).

(c) *Other reflexes*.—With the exception of the carpo-metacarpal reflex, no definite changes have been observed to occur in the arm-reflexes after the malarial treatment. In 15 cases, 6 men and 9 women, however, the carpo-metacarpal reflex increased in degree, or appeared for the first time either uni- or bilaterally, after the cessation of the rigors. There was no apparent relation between the appearance of the carpo-metacarpal reflex and the mental or general physical condition of the patient. One female was so well that she was discharged from the hospital a few days after a well-marked double carpo-metacarpal reflex had been found for the first time.

No change was observed in the reflexes of the lower limbs. In one instance unilateral ankle-clonus occurred for the first time eight months after the rigors. In two cases ankle-clonus disappeared after the treatment. The table below shows the occurrence of the carpo-metacarpal reflex as the ankle-clonus disappeared. This was observed in two cases.

Case 1.			Case 1.		
Date.	Carmo-metacarpal reflex.	Ankle-clonus.	Date.	Carmo-metacarpal reflex.	Ankle-clonus.
4.2.24	—	R. tendency ; L. present	29.5.24	Present on L. only	Present on L. only
5.3.24	Cessation	of rigors.	2.7.24	Cessation	of rigors.
3.5.24	Bilaterally absent	R. absent ; L. tendency	5.7.24	Present on L. only	R. present ; L. marked
20.8.24	Bilaterally present	Bilaterally absent	4.9.24	—	R. absent ; L. marked
			13.11.24	R. present, L. marked	R. absent ; L. marked

(d) *Sphincter control*.—During the rigors a large number of patients become incontinent of both urine and fæces, although previously they were not so. This incontinence ceases with the termination of the rigors. The patients incontinent before the febrile paroxysms remain so during them. In every case incontinent before the rigors, 13 patients in all, complete control over both anal and vesical sphincters has been regained after the rigors. In some of the cases the control only lasted for a few months; these cases were those with a long history of general paralysis, but in most instances the control has now lasted for many months. In addition to the incontinence, one man and two women required frequent catheterization before malarial treatment was undertaken. During the twelve months the male case was in hospital before the onset of the rigors, the longest period during which he did not require catheterization was two months. For a period of about two months after the cessation of the rigors the patient was incontinent of urine, although he did not require catheterization. For the last four months there has been complete control over both anal and vesical sphincters. The incontinence of urine of one of the female cases, whose rigors ceased in October, 1923, stopped immediately after the malarial paroxysms, but recommenced about ten months later. This patient showed a long history of general paralysis before malarial treatment, and, although she improved considerably for several months after the treatment, relapsed and

died in November, 1924. No catheterization was required at any time after the rigors. The other female patient has had complete control over both anal and vesical sphincters since the rigors terminated about three months ago.

(e) *Seizures*.—Seizures after malarial treatment have occurred in only one or two cases, these having been patients who had long histories of general paralysis before inoculation. The seizures have been very slight and no succession of attacks has occurred. In one patient in this series severe seizures occurred between the inoculation and the onset of the rigors, the latter commencing shortly after the termination of the seizures.

GENERAL CONSIDERATIONS.

Although many of the changes recorded above may occur in any one patient, they do not all occur in each case treated. Some patients may improve physically, but not mentally, others may change from maniacs to simple demented, while still others may improve to such an extent mentally and physically that they are able to be discharged to the care of their friends. The degree of improvement varies, according to Wagner-Jauregg (11), with the length of time that has elapsed between the first appearance of anything abnormal in the patient's condition and the date of onset of the malarial rigors. The shorter the period the better the prognosis. In addition, Gerstmann (2) states that the best results are obtained in cases of simple dementia and tabo-paresis, and Pilcz (7) adds cases with maniacal symptoms. Although the series under review contains cases with long as well as with short histories of general paralysis, yet physical improvement occurred in every patient treated. Marked mental improvement has up to the present occurred in the more recent cases only.

In conclusion I wish to express my thanks to Dr. G. F. Barham, Medical Superintendent of Claybury Mental Hospital, for permitting me to publish the cases referred to.

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Observations on Delinquent Mental Defectives.⁽¹⁾ By W. REES THOMAS, M.D., M.R.C.P.Lond., D.P.M., Medical Superintendent, and CECIL H. G. GOSTWYCK, M.B., F.R.C.P.Edin., Dipl. Psych., Assistant Medical Officer of the Rampton State Institution, near Retford.

THE problem of delinquency has a peculiar interest for the alienist as well as the social reformer, for it is now accepted that intelligence and mental disorder have a close relationship with antisocial conduct.

It has long been recognized that those persons in whom intelligence and mental capacity are very highly developed in special directions tend to show a mental instability often amounting to legal insanity, and at the other end of the scale idiopathic imbecility and idiocy are accepted as defects of development resulting in the inability of such subjects to care for themselves. The latitude allowed to the genius and the imbecile was not at first extended to the great mass of the population, faulty conduct being visited by punishment of a character and intensity which varied according to the nature of the delinquency and the prejudice of the period.

Modern ideas have tended to bring more and more to the front the necessity for reformatory measures rather than punitive action, and this kindly attitude has resulted in the differentiation of criminals and delinquents into two classes, *i.e.*, the responsible and the irresponsible. With the former we are not now concerned.

⁽¹⁾ A paper read at a meeting of the Northern and Midland Division held at the Grange, Rotherham, on October 23, 1924.

The latter include those who, while not certifiable under the Lunacy Act, do in fact suffer from defects of intelligence and social capacity of such a degree as to allow the presumption that they are unable effectively to control their antisocial activities. Where there is obvious lack of intelligence a correct diagnosis is not difficult, but where the presumed defect is slight, the physician requires to rely largely on his experience of normals and on his ability to distinguish temporary aberration from permanent defect.

Further, it is found that many people of apparently normal intelligence are guilty of persistent vicious or criminal conduct, and on whom punishment has no deterrent effect. These persons have been held to be suffering from a delay in or a failure of development of the higher mental faculties which produce the inhibitions necessary to our social system. The establishment of the permanence of such a deficiency is a matter of incredible difficulty, and must depend almost entirely on the method of trial and error.

The large class of mental defectives, as apart from the insane, is dealt with by the Mental Deficiency Act, 1913, in which the various grades are separated and defined; in it also provision is made for the establishment of State institutions for those defectives who display tendencies of a dangerous and violent character. Rampton State Institution is the outcome of this Act, and in this paper we give an account of the clinical aspects of the 400 patients who are now detained therein.

Our cases are received from all parts of England and Wales. They represent those defectives who are unfit for association with others, and who are not amenable to control in local institutions and homes. They have demonstrated their violent and criminal tendencies before admission, and have proved themselves to be antisocial characters. With few exceptions the patients belong to the higher grades of defectives, there being no idiots and very few imbeciles under our care. The great majority are under twenty-five years of age, and the youngest is sixteen. The general methods of administration do not differ from those in other institutions, with perhaps the exception that considerable concessions are necessarily made to the idiosyncrasies of our patients. They are naturally allowed as much freedom as may be consistent with proper safeguards against escape. Over 90 *per cent.* are employed in useful work, the remaining 10 *per cent.* being sick or mentally incapacitated.

The antisocial and abnormal behaviour of our patients make individual study essential. No one case can be treated on general lines as the variation in type is great, and a considerable proportion have superimposed on their defects a mental disorder of which the

manifestation, sometimes slight and shadowy, sometimes obvious and severe, is usually recurring and transient.

Defective development is often expressed in terms of the intelligence quotient, which represents a comparison between the intelligence age and the chronological age. But this form of classification loses its value when mental disorders are taken into account, for the clouding effect of psychical disturbances results in so much variation in the same individual that it is impossible to base any form of classification on such unreliable data.

A grouping based on clinical grounds, however, may be of value, and we find it possible to divide our cases into three main groups :

1. Simple mental defectives.
2. Mental defectives with abnormal emotional instability.
3. Mental defectives with psychoses or psychoneuroses.

Proportions of these Groups at the Present Time.

—	Simple Mental defectives.	Mental defectives with instability.	Mental defectives with psychoses.
M.	21	26	53
F.	5	37	58

1. Simple Mental Defectives.

The cases included under this heading refer to a type in which the obvious intellectual defect is unaccompanied by any clinical condition that can be called a supervening disorder, and in whom emotional instability is not a prominent factor.

Judged from the standpoint of behaviour they may be regarded as adolescents and adults with the intellectual level of their age, but possessing only the degree of control properly pertaining to children of their class and experience. The ability to collate cause and effect, *i.e.*, the faculty we call reason, and which is a factor of intelligence, is limited by the complication of the situation at the moment, and those of defective intelligence are not able to deal with the complicated situations which may and do arise in the course of the struggle for existence; in addition to this, their defective capacity forces upon them a consciousness of inferiority which too often finds compensation in an aggressive and antisocial attitude, with the result that they become troublesome and often difficult to manage.

Their emotional reactions, their jealousies, the good effect of encouragement, unfortunately only temporary in its effect, can be cited as the normal reactions of the low mental age to which they belong. The onset of puberty and adolescence gives rise to other

impulses which they cannot control, and which often determine the type of criminal conduct.

Inside institutions they gradually become tractable and often industrious. The steady routine of institutional life acts as a sedative, soothing those passions which the everyday difficulties in their outside life must aggravate. The motherly care and benevolent forethought of a capable nurse shields them from such small adversities as irritate and rouse them to anger. Unfortunately their tendency to imitate other patients, and the fact that they are so impressionable, makes it necessary to segregate them from the other and higher-grade types.

2. *Mental Defectives with Abnormal Emotional Instability.*

In the second group we place those feeble-minded patients in whom emotional instability is a prominent symptom.

This instability occurs in its greatest intensity during the adolescent period, often persisting throughout life, but the importance of this weakness of emotional equilibrium lies in its effect on behaviour. These patients are restless, mischievous, defiant and noisy; too often they are violent and wantonly destructive. No matter how frequently they promise or seem to try to behave well, they are easily upset by the most trivial events; a hasty word from a nurse or fellow-patient, an impossible request refused, or even an omitted "Good morning" by the doctor, is enough to turn them aside from their expressed resolutions, and to produce the most extreme emotional outbreak with concomitant violent actions or spectacular suicidal attempts. Other patients of the same group are affected so easily that prompt segregation is the only possible means of avoiding the rapid establishment of a vicious circle. They are not, however, continually difficult, as for short periods they may make every effort to submit to control, and will earn privileges by their good conduct, industry and work. The duration of these attacks varies from a few hours to several days, but it is always more intense and more prolonged in females.

Such patients are fully conscious of their actions while the attack is in progress; they show no mental confusion, and there is an entire absence of any of the characteristic signs of mania. Conduct is deliberate and directed: a girl will for little apparent reason smash several panes of glass, often cutting her arms and hands severely, then, having thus relieved her feelings, immediately settle down to another period of good behaviour and useful work. She may afterwards explain that she felt unsettled and simply could not help herself.

In the consideration of this class the outstanding factor is emotional instability—a condition which may, and indeed does, occur in all grades of defectives. The low-grade case presents no special difficulty, as the behaviour and antisocial conduct is sufficiently explained by the lack of intelligence and capacity. The higher grade and the numerically greater type cannot be so lightly dismissed. Here the mental capacity is often quite good, its limitations apart from instability being a slight defect of intelligence. They would be expected to show a fairly high degree of reasoning power with the consecutive ability to compare various past experiences and modes of conduct. But although a satisfactory amount of reason, judgment and wisdom is demonstrated by tests carried out under laboratory conditions, a reference to case-histories proves that, judged on the basis of behaviour, none of the faculties have been allowed to find expression in pro-social conduct. It would seem, therefore, that we must look to our clinical symptom of instability for the explanation of the abnormal behaviour which is the main reason for detention in an institution.

A parallel condition of instability arising and persisting for a few years is found during adolescence in normal persons of both sexes. But there the instability differs from the cases under review in that it is neither so highly coloured nor so serious in its character, and further, that its active phase is confined to the period of adolescence.

Tests of all kinds have one defect, namely, that they fail to catch and record variations of emotional tone, and so we are unable to measure the degree of affective equilibrium. This instability is probably the factor which determines the uneven conduct, and the failure to pay attention to the phenomena of the external world in proportion to their importance to the social organization.

There is another type of affective disorder which is often difficult to separate from the form described above, and is therefore temporarily included in this class. It is characterized by a degree of emotional detachment, with behaviour which is extremely suggestive of the internal dissociation of dementia præcox. The condition may arise during the course of an ordinary instability and may be transient. We have noticed it particularly in high-grade defectives, and this condition seems worthy of special study. We can only suggest that it is clinically a transition stage from instability to the more severe and apparently different condition of dementia præcox.

3. *Mental Defectives with Psychoses or Psychoneuroses.*

In the third main group are included all those cases that show a persistent or recurring psychosis or psychoneurosis supervening on or causing a legal mental deficiency.

The intellectual deficiency of these cases is not always obvious, and can be demonstrated only during the intermissions of the mental disorder, it being possible that the apparent defect is due to a dementia which arises during the course of a psychosis commencing at an early age. We have often noted in the history of a patient evidence of the gradual and steady development, from the ages of six or seven years, of a mental disorder which when brought under observation is found to have all the clinical characteristics of dementia præcox.

The forms of mental disorder do not differ from those in ordinary alienist practice—hysteria, anxiety, neuroses, manic-depressive states, dementia præcox, either active or non-progressive, paranoia, epilepsy, transient hallucinatory attacks, mostly auditory or visual, and delusions commonly of a persecutory type, as well as attacks of mental confusion often so slight as to be overlooked. Most of these disorders are periodic in their manifestation, for after an exacerbation with acute symptoms lasting for a few short hours or days, they settle down to a comparatively long quiescence or period of intermission. This point is of importance, as it is quite possible, and in many instances certain, that crimes for which the particular patient came under observation have been committed while in a definitely morbid mental state.

The most common associate of the antisocial conduct in the cases of this group is found to be transient ideas and delusions of persecution. They are frequently expressed quite definitely, but are often vague and ill-defined; nevertheless they can be regarded as clearly morbid, and not the too apparent efforts at self-justification so usual in those of defective intelligence and capacity.

Many of the patients remind us of the tramps who find it impossible to settle down in any place because the normal conduct of others becomes distasteful to them. Their antisocial attitude in general seems to be the outcome of a morbid mental state, which when exaggerated forms the delusions of persecution that are now frequently considered to be based on complete or partial repression of homosexual tendencies. It is noteworthy that men committed for crimes of a homosexual nature, and those who are known to possess homosexual desires, are particularly of this type. It is common knowledge amongst our male attendants that in these homosexuals the rigid suppression of their homosexual tendencies

inside the institution leads to fleeting delusions of persecution, and occasionally to the most intense feuds between particular patients who at some time or other have together sought to escape observation in order to satisfy their abnormal cravings.

That half the number of the patients in this institution suffer from morbid mental disorders is important both from the point of view of conduct, and because it raises the question of their certifiability as insane. It must be remembered, however, that they are feeble-minded within the meaning of the Mental Deficiency Act, 1913, and that the psychosis is transient in its manifestation. Many are insane for short periods, but the symptoms subside so rapidly that certification is difficult, and often not possible; in fact most of these patients are regarded as of the borderland type. When obvious and persistent mental disturbance arises, steps are taken to deal with the case under the Lunacy Act.

The psychosis is not always apparent to the ordinary observer, and when a defective comes under the notice of the authorities on account of some crime or antisocial behaviour, possibly committed under the influence of an early and mild psychosis, the acute and outstanding symptoms have disappeared, leaving the mental deficiency as the only ground on which to deal with him. Under these circumstances he is rightly certified under the Mental Deficiency Act, and since the symptoms of the psychosis are mild and transient, they can only be recognized when he is kept under observation for long periods. In a certain number of instances crime is committed only during the periods immediately preceding or following the attacks of those mild and scarcely perceptible mental disorders; were it possible to certify the defective as insane at the time of his misbehaviour, he would necessarily be discharged at an early date and released to continue his career of crime.

The common factor of all our cases is antisocial conduct of such a degree that detention is necessary for the protection of society. The relative importance of mental disorder and mental deficiency in determining this particular type of behaviour is a subject into which we do not propose to enter at present. It may, however, be pointed out that it is not always possible, and, in our opinion, not at all desirable, to neglect the importance of psychical disturbances, and thus to imply that the congenital mental deficiency alone is the determining cause of criminal conduct in mental defectives.

The Methods of Psychotherapy⁽¹⁾. By FREDERICK DILLON, M.D.Edin., Medical Superintendent, Northumberland House Mental Hospital.

INTRODUCTION.

THE antiquity of psychotherapy is in great measure responsible for the difficulties which involve this branch of medicine at the present time. For it comes to us trailing clouds of superstition, pervaded by implications of the most unscientific order.

To discover the earliest phase of this form of treatment, one must go back to the earliest phase of mankind. Garrison, in his *History of Medicine*, remarks that the medicine-man of the savage state handles disease almost entirely by psycho-therapeutic procedures. After describing some of these the author continues: "We may smile at these phases of Shamanistic procedure, but except for the noise, they are not essentially different from the mind medicine or faith-healing of our own day." The quotation is of interest in pointing out the lineage of psychotherapy, but singularly misleading in identifying the crudities of primitive procedure with modern refinements of method.

As a survival of savage culture, psychotherapy has naturally undergone many modifications, but the main obstacles to its scientific application consist in the atmosphere of occultism and ambiguity with which it is still attended. The history of science, in fact, has largely been that of the struggle to detach itself from the mystical and religious prepossessions which arose from the earlier beliefs in animism and magic. More slowly than in other branches of medicine psychotherapy is freeing itself from these distorting and retarding influences. As Tyler has said: "The theory of the immediate action of personal spirits has given place to ideas of force and law. . . . There was a period of human thought when the whole universe seemed actuated by spiritual life. . . . It is deeply interesting that there should remain rude races yet living under the philosophy which we have so far passed from since physics, chemistry and biology have seized whole provinces of the ancient animism setting force for life and law for will."

It is a point of considerable interest to note how profoundly savage culture was permeated by neurotic influences. Various writers have pointed out, for instance, the extreme suggestibility

(¹) A paper read at a meeting of the South-Eastern Division held at Peckham House on October 8, 1924.

of the savage mind, the tendency to hallucinations, the profound incest sensitiveness and the marked prominence of the phenomena of emotional ambivalence and omnipotence of thought. Freud has very significantly drawn a parallel between the various taboo and totem systems and the manifestations of certain of the neuroses. It is further instructive to appreciate the facility with which at this level of culture abnormal states of mind could be induced. It was a frequent practice for the sorcerer or medicine-man to work himself into a state of hallucinosis, in which he communicated with the spirits and obtained the information he desired. Convulsions, deliria, states of trance and catalepsy were apparently quite common phenomena, and in the initiation ceremonies and tribal dances, pronounced abnormal states of mind were deliberately brought about. A knowledge of these facts is of more than merely historical interest. For the possibility of the voluntary creation of a neurosis—using the term in its broadest sense—is of great significance at the present time, when the theory of unconscious motivation is so commonly accepted.

The elaboration of a scientific method in dealing with phenomena took place with greater certainty and rapidity in the objective spheres than with psychology. The unfortunate condition in which we find psychotherapeutic practice to-day is eloquent testimony of the fact that a true scientific attitude has not yet been developed, or is not yet being put into general practice in this branch of medicine. It seems to be the case that a greater sensitiveness exists among scientists dealing with the objective fields of research towards discrepancies of observation and theory. On the one hand there is the point of view of those who go so far as to deny the possibility of a science of psychology, and to disclaim any utility in the manipulation of psychological phenomena. Lewis Bruce, for instance, would eliminate psychology from the purview of the alienist. "When psychology is divorced from psychiatry," he writes, "and the study of psychiatry is prosecuted along the lines of advance in general medicine, our knowledge of mental disease cannot fail to be added to."

One can respect this frank and courageous expression of belief, even though disagreeing with it. Most authorities, however, agree that a knowledge of psychology is a useful if not indispensable preliminary to the study of psychiatry, and necessary at any rate for the adequate understanding of the so-called functional diseases. Some carry the doctrine to the opposite extreme, and would exalt and magnify the possibilities of mind to a degree quite unwarranted by the evidence. Finally, there are those who, while dealing by psychotherapy with the neuroses, teach the psychologically obscure

notion of a functional derangement of the cortical cells subserving the disordered activity.

The position, though anomalous, is probably the inevitable consequence of the past history of mental science. Some agreement on first principles is obviously necessary before we can hope to elucidate the grounds of what can be properly called mental pathology and treatment. The application of the strict scientific method is obviously more difficult, and consequently more necessary in the mental than in the objective sciences. And the first step is to recognize that we all of us enter the field with biased minds. From the conditions of early training and from the very necessities of our mental constitution, we take up the consideration of the problems involved with preconceived attitudes, preferences and hostilities. The action of a sentiment, or complex, or instinct, for instance, results, strictly considered, in an intellectual bias, an obliquity of presentation, or a disturbance of the proper balance of judgment. As we vary in emotional disposition, in sense of humour or memory power, we vary also in power of judgment and logical capacity. As Locke declared, "Each man's mind has some peculiarity as well as his face, which distinguishes him from all others."

The way out is, it seems to me, to develop as finely balanced and sensitive a "sentiment of rationality"—to use James's phrase—impersonal and neutral, as it is within our power to achieve. However disappointing it may be, the unification of knowledge in the scientific aspect of life at the present stage is impossible, and especially is this so in psycho-pathology. There is in consequence little justification for the attitude of intolerance that is sometimes undesirably manifested. Time is necessary to enable uncertainties of doctrine to be resolved, and in the interval one must look on the multiplicity of views and divergencies of practice as the normal state of affairs. Orthodoxy has never been a scientific conception, and to demand strict conformity to any one system of treatment under a threat of excommunication savours more of the sectarian than the scientific attitude of mind.

Fundamentally there are only two kinds of knowledge, or rather belief—belief from faith or suggestion, and belief from evidence—and it is the latter form only which can be called scientific. To accept a doctrine in the absence of the evidence on which it is founded—be it psycho-analysis, the germ theory, or any other—is merely the exercise of faith. As such it is an attitude of mind distinct from the scientific attitude, and reminds one of the historic example of the person in the time of Vesalius who refused to accept the new teaching on anatomy, but declared he would rather err

with Galen than be right with any other physician. It is only through the application of a stringent scientific procedure, in particular in enforcing careful discrimination between facts, inferences and concepts, and by the attrition process of criticism and discussion, that we may hope the permanent principles of psychotherapy will ultimately emerge.

METHODS OF PSYCHOTHERAPY.

Though the methods of mental therapy seem very numerous and varied, the differences represent for the most part variations merely in detail and procedure. In regard to principle the different forms may be reduced to three main types—suggestion, including persuasion; re-education and psycho-analysis.

The discovery which has transformed our conceptions of mental pathology and treatment, it is hardly necessary to state, is psycho-analysis. Freud, as the Machiavelli of psychology, evolved an instrument which has enabled us to penetrate beyond the more superficial and conventionalized layers of mind, and reveal the hidden facts of experience in their native and unpleasant crudity. It was by a series of accidental observations that he came, first by the use of hypnotism, and later by the method of volitional recollection, aided by the suggestive influence of the "pressure procedure," finally to light upon the free association process that has proved of such illuminating significance in clinical psychology. The centre of interest has shifted in consequence to the unconscious, and much controversy still continues round this problem. A mass of material has been obtained by exploration of this region, and it is the varying interpretations in the evaluation of this material that have brought about the formation of different schools of thought on the subject. The divergencies between the sex interpretation of Freud, the power theory, the schools of Jung and others, show that a stable and consistent structure of principles has not yet been evolved, but that the problems that have come to light remain still in a very undecided condition.

It would be inappropriate and impossible here to discuss in detail the various mental mechanisms which have been elicited by analytic investigation. It would seem obvious, theoretically, that in psychogenic disorders, analysis, apart from any particular school, provides the most thorough and complete opportunity for revealing and eliminating, or therapeutically modifying, the hidden pathological factors. In practice, however, one finds that this expectation must be materially qualified. At the same time, as in all scientific questions, an attitude of judicial openness in estimating

the problems involved is the only consistent position one can adopt.

The œdipus complex, in my view, has proved a most illuminating conception for mental pathology, and it would be difficult to over-estimate the value of the distinction between the unconscious and the preconscious, and of such mechanisms as repression, ambivalence of emotion, displacement of the affect, and others. The prototype theory has clarified in great measure the former vague conceptions on the influence of early experience. There is, in short, in my opinion, no reason to consider that the great triad of Freudian doctrine, the unconscious, the infantile and the sexual, which has caused so much controversy, should, if used in due perspective, be productive of anything but benefit and insight.

It would seem from experience that the idea of repression will require further clarifying and discrimination, according to its forms or types, and the levels at which it acts. We should speak rather of repressions than repression. The elements of conflict, too, are in need of further elaboration; in particular a clearer conception is required of the nature of the wish. It is taught that the unconscious and its mechanisms form the basis for the development of the neuroses, but the fact remains that these unconscious activities must always be tested and endorsed by the appeal to consciousness. This is sometimes a point of peculiar delicacy, raising uncertainties relating to the memory-process which often cannot be resolved. The problem of causation in this regard, in fact, is one of great complexity. It is easy to show, by the principle of relativity, that any given preconscious factor may be associated with many unconscious elements. One must not, however, push this point too far. There is, in my view, a considerable body of evidence which indicates that a neurosis may develop from preconscious motives alone. We have also pointed out, from comparison with facts of primitive culture, that a neurosis of volitional origin is quite within the realm of possibility.

We must, in fact, distinguish the application of analysis as an instrument of investigation from its use as a method of therapy. In the latter sense its limited utility in practice soon becomes apparent. For although analysis has proved of immense value in explicating and deepening our insight into the structure of the neuroses, and has provided the only means of adequately ascertaining both the pathoplastic and pathogenic factors at work, the fact remains that its applicability as a mode of treatment is in danger of being over-estimated. In the large majority of cases, analysis, in any radical sense, is impossible, from considerations of age, intelligence and character. For a certain level of intelligence

and a certain stability of character are requisite if attempts at analysis are to have any real measure of success in removing resistances and effecting the "assimilation" process, and to be free from injurious influences. The necessity, therefore, remains for the utilization of other forms of mental treatment in the neuroses and other appropriate conditions.

Suggestion as the most historic form of psychotherapy has a long lineage, but the essential problems in connection with it are still to a large extent obscure. Its simplicity of concept has captured not only the scientific, but the popular and semi-scientific imagination to a considerable degree. In consequence, as several writers have observed, it has been employed on such a comprehensive scale to explain such a vast and heterogeneous collection of phenomena, that any real utility it might possess as an explanatory formula has been reduced to a minimum. Suggestion forms, in fact, one of the outstanding problems in psycho-pathology at the present time, and a clear insight into its nature would go far to solve many obscure manifestations.

When Braid demolished the mesmeric theory and substituted that of hypnotism, he performed a considerable service for applied psychology. His work and capabilities, in fact, have not been adequately recognized. He possessed the true scientific attitude of mind, he had courage, imagination and a sense of humour, and was not afraid to alter his opinions when he found them to be inadequate. With the publication of his book, *Neurypnology*, in 1843—two years after taking up the study of the subject—and with his later articles, he placed the problem of hypnotism on so sound a basis that little of noteworthy value has been added to it until quite recent times. His suggestion for the use of "monoidism" and its derivatives to describe the hypnotic state, though inadequate, was excellent in design—an attempt to provide a terminology precisely adapted to express a clear and distinct conception. By the consideration he gave to such concepts as that of fixed idea and double personality, he anticipated much of the later work that was to come.

When Liebeault began the practice of hypnotism at Nancy, in 1864, the work of Braid seems to have been forgotten. With Bernheim, who joined Liebeault later, the main problems of hypnotism were worked out afresh, the results being embodied in the former's book on Suggestion, published in 1884. The principle that the manifestations of hypnotism did not differ except in degree from the normal state was one of the points of controversy which brought the Nancy school into conflict with that of Charcot, in Paris, who looked upon the hypnotic sleep as an artificial neurosis,

an expression of hysteria. Considerable divergence of opinion on this and other associated problems remains to-day. Whether we can say, as is so commonly held, that there is no essential distinction between hypnotism and suggestion in the waking state, is a matter that, in my opinion, is still undecided. There are problems of quite peculiar interest relating to the hypnotic condition, such as the effects that can be produced on the involuntary organic functions—the processes of digestion, repair, childbirth and others—which are far from being explained by the modern theories on the subject.

Short of the condition of hypnotic sleep, the "hypnoid" attitudes of mind facilitate in many cases the action of suggestion. The modern representatives of the Nancy school, in the attitude of effortlessness and "contention" which they advocate, make use of an alteration of consciousness similar, if not identical, with the "hypnoid" conditions. The encouragement of the method of auto-suggestion, or rather reflective suggestion, is an advance on older methods, but as a form of suggestion, suffers from the same disadvantages as other types, which will be later discussed.

The channels or vehicles by which suggestion may be conveyed in the waking state are manifold, ranging from the vague personal influence of the physician, and simple verbal reassurance, to the more impressive procedures connected with electrical application and hydrotherapy. We all of us make use of the simpler modes—we cannot help making use of them—in everyday life, but what the actual nature of the process consists in has still to be made clear.

The method of persuasion as taught by Dubois differs somewhat in procedure, but not at all in principle from the method of suggestion. It was developed as a means of combating the effects of suggestion, but the distinction was made between suggestion as the action of a blind, uncritical process, "which acts by the circuitous paths of insinuation," and persuasion which appeals to the reason of the subject. The difference was said to be that between blind faith and reasoning faith. Accordingly the treatment consisted in a process of logical argument, an attempt on the part of the physician, by the use of convincing syllogisms, to argue away the symptoms of the patient, who is met "with a parry for every thrust."

The system of Dejerine, though commonly classed as a method of persuasion, constitutes an advance on that of Dubois, particularly in the emphasis that is laid on the importance of the emotions in the causation of neurasthenia and hysteria. Treatment, consequently, is directed towards a rearrangement of the emotional factors, and may be carried so far as to attempt the reconstruction

of the patient's personality. By a detailed anamnesis and by encouraging the patient to talk freely of his troubles, a "liberating action" is effected on the pent-up scruples, emotions of remorse, self-reproach and so forth, and finally the patient's personality is "directed into healthy channels." A reorientation of the personality is attempted by means of the sthenic emotions, which are said to "call forth the most constructing and uplifting sense of action."

The deficiencies of the two methods last considered, persuasion and suggestion, are too evident to require much elaboration. Dejerine's system, though tending in the right direction, suffers from a pervading vagueness. In particular, he omits to indicate what are the sthenic emotions to be made use of in reconstructing the personality. The emotion of anger or a sentiment of hate may be said very definitely to be sthenic, but it is presumably not to emotions such as these that he refers. We are, further, left in considerable doubt as to the actual means by which the reconstructing process is to be effected. It is obvious, too, that in common with suggestion in general and Dubois's method of persuasion, they are blind, indefinite measures. It is treatment in the dark, directed against the symptom, and can in no way act upon the causal factor. It is the method of repression, influencing only the end links of the causal chain, and producing its effect by inhibiting the outward manifestations of the underlying pathogenic factors. In so far, further, as it is based upon a theory of ideomotor action, it is working along lines which are wrongly directed.

The last method of treatment to be considered, though still incomplete as judged by the analytic standard, is of much wider applicability and utility than any other method of psychotherapy. Re-education as a special method of treatment is associated particularly with the names of Janet and Morton Prince, but it is capable of much greater extension than it was given by either of these writers, largely as the result of the insight gained from the investigations of the analytic schools.

In the theory of persuasion and suggestion, the fundamental insufficiency consisted in either an over-estimation of the cognitive aspect of mind, in the theory of ideomotor or ideo-reflex action, or a vaguely-conceived and imperfectly-applicable view of emotivity. It has been well said that it is only through the feelings that we are at the mercy of events; and if a method can be evolved of dealing directly with the feeling-situations, and with the mode of emotional reaction of the patient, while free from the disadvantages of analysis, it will constitute a considerable gain for psychotherapy. In this regard re-education has proved itself to be of much greater value than has hitherto been considered.

When we examine the "complex" as the commonly-accepted pathogenic factor in mental pathology, we see that by its definition as an idea (or series of ideas), organized, bound up, or invested with emotion, it can only mean that the idea is associated or linked with the emotion in a permanent relationship. The simple relation of this kind, implying a clear recognition of its components, idea and emotion, seems to me to be the true unit of mental functioning rather than the complex, which may be of any degree of intricacy, and preferable to the concept of the wish. It is this simple mechanism—for which I use the name "conator"—which we should make the object of elucidation in treatment, and into which the complex, sentiment, or wish should be resolved. For the complex quite commonly is found to consist of a number of these simple structures, each with a different emotional tendency. As Morton Prince has observed, the linking up of idea and emotion is one of the foundation stones of mental pathology; and for the application of the method of re-education its recognition is an essential preliminary.

The investigation of the case may take place by means of free association, hypnotism, automatic writing or other means. Generally a modified analytic procedure is most successful, and it may often be modified to a considerable degree. For in many cases the mental attitude of the patient may differ very greatly from that required by the analytic technique, and, in fact, the latter may be quite impossible to attain. The investigation into the causal and conditioning factors is carried as far as is expedient in the particular case, regard being paid to the type of personality and the reaction-possibilities of the patient. In my experience, it is inadvisable to attempt to go into the remoter factors of the sex life; this should be restricted to those undergoing the complete analytic treatment. With the great majority of patients concentration on the more proximate, preconscious, pathogenic tendencies is all that is necessary or perhaps possible. For it seems to be the case that there exist strata or layers of causal and conditioning factors, modification of which, even at the upper level, may have a most beneficial effect.

As the pathogenic factors (conators) are disclosed, the characteristic feature of the treatment then consists in altering the emotional components by substituting emotions of a different and healthier order. The nature of the substitution will vary with the particular problem. Speaking generally, however, there can be no doubt that reliance must be placed on the emotions of optimism, confidence, courage, self-regard and allied feeling-attitudes. By this means the setting, the organization of the structure is altered,

and the whole value and significance of the pathogenic mechanism is changed.

Concurrently with the treatment of his disorder the patient is to be taught to apply the method in his daily life, and so to form a habit of confidence and optimism. Little attention has been given to this form of habit-formation.⁽³⁾ We are familiar with the habits that are exercised mainly on the muscular system, in acquiring facility at games for instance; and we all of us form our habits of thought. But the type of habit that is more important than either of these is largely neglected—the habit of feeling—of feeling constantly the healthy emotions of confidence and optimism.

By forming a habit of this kind the minor depressions, irritabilities and worries that are inseparable from every-day life are made to relinquish their pathological tendencies. The patient is given the opportunity of revising his whole emotional outlook, of developing a condition of emotional balance and stability which will enable him to meet the exigencies of life largely unperturbed, and to take pleasure in the struggle for existence. It is the doctrine of optimism reduced to systematic application, and may result, if successfully carried out, in a considerable transformation of the patient's personality. The war showed the remarkable powers of adaptation in this direction which the average human being possesses. The process is assisted by the application to the problem of the feeling-attitude, known as the sporting spirit, and the solvent action of the sense of humour goes far to minimize difficulties and place them in their true proportion. Maudsley has observed: "Were a man capable of looking at himself from outside, and of satirizing himself as a fool among fools when he makes a fool of himself, the practice would be a wonderful preservative against insanity."

CONCLUSION.

Though our knowledge of mental pathology and treatment stands in definite need of unification, there can be no doubt that, such as it is, it is of the greatest service in the treatment of the neuroses, and in the early and convalescent stages of certain of the psychoses. A first step towards the required unification will be the elucidation of the concept of psychological causation, of what we are to understand by a psychological explanation. The evaluation, too, of such doctrines as that of ideo-motor action, of the relative significance of the conative and affective processes, and of the unconscious, preconscious and conscious aspects of mind, will go far towards placing clinical psychology on a sound and permanent basis. At the present time, on account of the fact that psycho-therapeutic

practice has split into so many divergent schools, it not infrequently happens that advice given to a patient by different physicians is not only conflicting, but actually contradictory. Patients, consequently, are in danger of developing a negative attitude towards all forms of mental therapy.

The need is therefore great for the development of a method of treatment based on intelligible and rational principles which can be readily understood and put into practice by the ordinary patient. We see, in summarizing the results of our consideration of the modes of psychotherapy, that there are, strictly speaking, only two radical methods: abreaction—in the sense of disintegration or elimination of the pathogenic mechanism—and repression. A compromise between the two is the path of sublimation, in which the pathological tendencies obtain a more or less established outlet in some socially useful sphere of activity. The latter, however, being a condition of uncertain equilibrium, and one which cannot be effected with certain forms of emotion, is a method of doubtful value. There can be little question that in appropriate cases, analysis, in providing the opportunity for radical abreaction, is the method of preference, but, as we have seen, its applicability is decidedly limited. On the other hand, it is a fact of common experience that the methods of repression, suggestion and persuasion do produce most gratifying results. Re-education is capable of producing both abreaction and strong therapeutic repressing effects, and is, in my opinion, the most widely applicable and most valuable form of psychotherapy. It is a rational method of dealing with the affective components of the personality, and not the least part of its value consists in the active co-operation that is required on the part of the patient himself.

It is evident that different forms of treatment will be called for with different types of patients. For the psychiatrist a knowledge of mental mechanisms and of the methods of psychotherapy form a valuable equipment, which will enable him not only to secure a proper insight into symptomatology, but to apply suitable measures of treatment at the appropriate stage in the disease-process. It is a mistake in my belief to look upon the occurrence of the psychoses in general as necessarily implying an inborn predisposition. The war provided very suggestive evidence on this point. We are all of us potentially or latently susceptible to neurotic manifestations. Mental health is a condition of balance or equilibrium between conflicting influences. I am convinced that it is quite possible to produce a neurosis or even psychosis in the healthiest individual free from neurotic antecedents, given sufficiently intense and prolonged environmental strain. It seems to be the case in some

instances that the deeper and graver causes of a psychosis are only brought to the point of pathological emergence by the addition of more superficial and removable pathogenic factors. The latter can very frequently be dealt with by psycho-therapeutic means. And though it is often dangerous in these disorders to attempt a radical form of mental therapy, much may be done by means, especially, of re-education measures in guiding patients towards a more healthy outlook on life, and in teaching them to react in a balanced and stable manner towards the difficulties they must inevitably encounter.

[(" Sir Thomas Clouston laid the greatest stress on this. Surely it is the practice of all experienced psychiatrists!—Eds.)]

Occupational Therapy. A Series of Papers read at a Meeting of the Scottish Division held at the Glasgow Royal Mental Hospital on Friday, May 2, 1924.

I.

By D. K. HENDERSON, M.D.Edin., F.R.F.P.&S.Glasg., Physician-Superintendent, Glasgow Royal Mental Hospital.

THE time for a discussion of occupation as a means of cure or betterment in cases of mental disorder has long been overdue, and needs no apology. The papers which have been read deal with its practical aspect, and relate in a convincing way what has actually been accomplished. My aim is twofold. In the first place, I wish to give a short historical *résumé* of occupation as it has affected Gartnavel, and in the second place, to discuss its importance and value.

The reports of the Glasgow Royal Mental Hospital date back to 1810; many of them are of absorbing interest, and merit the most careful study.

At the laying of the foundation stone of the Asylum on August 2, 1810, Dr. Stevenson Macgill, the minister of the Tron Church, delivered a most enlightened address, in which he emphasized the importance and wisdom of cases being taken to mental institutions early in the development of their mental disorder, and remarked also on the importance of patients being treated as human beings with natural feelings. He said—"The notion that with the loss of reason our fellow creatures have lost all sensibility to pain or pleasure is a gross and vulgar error, unworthy of a people of humanity or of observation. In many cases they manifest very acute sensibility to neglect and personal injustice; often you see them keenly

alive to the ridicule of the unfeeling, and often shrinking from the look of contempt, or of the tone of severity. . . . All have their tastes, which may often with safety be gratified, and few are not capable of some employments which are calculated to amuse and to please them. But these cannot be enjoyed with safety in the ordinary haunts of men, never in the abodes of the poor, the labouring and the busy; seldom with convenience and comfort in the houses of the affluent. Where confinement is necessary, asylums furnish a comparatively happy retreat, and where the state of the patient renders greater liberty safe, they furnish an abode best adapted to his condition. Comforts are provided suited to his state, evils warded off to which he is exposed, and means of enjoyment and occupation are conferred which in other circumstances might be dangerous or could not be afforded."

The Asylum was opened in 1814, and in the second Annual Report of the Directors, published in 1816, there is a reference as to how occupation may be used as a means of cure. The case is recorded of an old dragoon of The Greys, who during twenty-three years, every three months had a dreadful attack of outrageous insanity. Gradually, however, he improved, and it is recorded that he became "very happy knitting worsted gloves, until a proper place of residence could be found for him." In the same report it is stated, "Two looms have been erected by the Superintendent, which made one patient who had been for some years listless almost to torpor, exclaim that 'the house was now altered indeed; it was now worth living in.'"

In the third Report of the Directors, published in 1817, it is recorded that "Two looms and five spinning-wheels are generally kept at work; clothes are made or mended, stockings and worsted gloves are knit, and occasionally a little muslin is flowered, though, on the whole, this is the least profitable manufacture, because when any freak or wrangling occurs, the figures are apt to rise on the wrong side. Every encouragement, however, is given to the exertions of industry, because nothing contributes so much to promote a cure and prevent a relapse."

In the years 1818-1819 statements are made to the effect that "cures have been promoted and relapses prevented by providing opportunities for billiards, bowling, reading, and other recreations."

The Report of 1820 mentions some of the common physical methods of cure, but especial emphasis is laid on the moral management of the patients. The Report states, "Sociality has often been promoted, while the irksomeness of confinement has been alleviated by various occupations and amusements. Bowls and billiards have been favourite games, and reading, music, drawing,

have often served to arrest attention and to dispel illusion. Some write letters or poems, one solves mathematical problems, and another has long been busily engaged in composing the history of a voyage round the world. But many have been more profitably employed. Some have laboured in the garden or shrubbery grounds; shoes have been made and cloth woven by various individuals, and one patient is at present very useful as a joiner. Some of the females have knitted and sewed diligently, and so many of them have been industriously employed in spinning that almost all the bed and table linen now used in the asylum is the product of their labour."

Another matter, perhaps not quite pertinent to the discussion, but of interest to record, is that in the Report of 1821 the statement is made that in 1819 divine service was instituted: "Our Asylum, we believe, is the first establishment of the kind in which a sermon was ever preached. . . . We are not aware that divine service, as in Church, was ever performed in any lunatic establishment in this country until it was introduced into our Asylum, and we are much gratified to find that our example in affording the benefit of religious instruction and consolation to the insane begins now to be generally followed." At the close of this interesting meeting one of the boarders of superior rank respectfully approached the clergyman and gratefully thanked him for his kind condescension in preaching to the unfortunate inmates of the Asylum, adding that he himself felt peculiarly gratified that now he was thought worthy to attend public worship.

In the Report of 1827 it is stated that "Due attention has been paid to those two important points, viz. the greatest practical degree of personal liberty, and the use of proper means of employment. We are inclined to concur in opinion with those who judge that lunacy, like fever, has a certain course to run. And, as the malady in most of our patients, when they are admitted, is in the progress of that course, a great part of our treatment consists in the use either of the means of moderating excitation, or of promoting convalescence. The most useful of these means, especially for the latter purpose, are such amusements or occupations as may engage attention, and afford some degree of bodily exercise. . . . In the winter season, especially when the inclemency of the weather obliges these patients to keep within doors, many of them are necessarily idle, and, of course, not the less prone to mischief. . . . Some means therefore of employing these patients so that they may enjoy the benefit of free air and exercise, yet without injurious exposure to the weather, is much wanted, and might, perhaps, at no great cost, be obtained."

The Reports in subsequent years all deal with the importance of occupational work, and I would particularly draw attention to the Report published in 1839, in which the following statement is made: "It was long justly complained of as a radical defect in almost all the institutions for the treatment of the insane, that no proper plan

for the employment of lunatics had been adopted. The idea of teaching lunatics to perform any useful handicraft operation would at one time have been treated as altogether chimerical, but by such well-devised occupations as experience has shown to be practicable, this difficulty has been surmounted, and the means have been discovered of affording salutary exercise and amusement to almost every description of the insane, while daily employment is now universally confessed to be the most effectual means of promoting recovery." In the same year a plan was submitted for the erection of more workshops.

In the following year the necessary improvements had been effected, and it is said: "In our capacious workshops, weavers, tailors, shoemakers, carpenters and saddlers may be seen diligently pursuing their avocations, while in the workrooms, laundry and washing-house, the various operations of sewing, knitting, cording, spinning, winding, shoe-binding, washing and dressing are carried on with cheerfulness and alacrity. The convalescent ladies are employed not only in ornamental work, but in the benevolent occupation of making articles of dress for patients of the poorer classes. The means of mental improvement through the medium of rational and harmless amusements have also been increased, while at the same time we have taken care that they be as much as possible suited to the rank and taste of each class of patients."

In 1841 it is stated, "Daily occupation not only diverts the mind from its delusions, and thus lessens their intensity, but frequently puts an end to the restlessness which attends so many forms of insanity. To secure all the advantages that may be derived from it, it must be regular, of such a nature as not to tax the mental powers, and at the same time adapted to the habits of the patient and his position in society. To employ a well-educated man in menial work would be as absurd and prejudicial as to amuse a labourer with billiards or chess; and to teach a patient a new trade when he is already acquainted with one in which he can be beneficially employed, would be clearly a waste of time. To engage anyone in an occupation which he has associated with loss of caste tends to degrade him in his own estimation and renders him careless of his habits and conduct."

These extracts must suffice. They indicate more clearly and forcibly than any words of mine the value attached by some of our predecessors to occupation as a means of cure. No doubt an examination of the archives of most of our mental hospitals would reveal similar views. Is it not strange, then, that so valuable a help should have met with so little recognition, because instead of being elaborated and systematized, it has been allowed to fall into

the background, and only now are attempts being made to resuscitate it? In 1899 Marr made a short report on the Brabazon scheme in an asylum, but otherwise I have failed to find any reference to it in the files of the *Journal of Mental Science*. In 1880 Lady Brabazon proposed a scheme to employ the infirm and crippled inmates of workhouses, and offered a grant of money for materials to any workhouse or infirmary that would try it. In 1895 this scheme was introduced into Scotland at Barnhill Poorhouse, and in January, 1898, it was introduced into the asylum at Woodilee. A number of ladies held a meeting in the asylum once a week, and patients of both sexes were collected into a large sitting-room. A great variety of occupations was taught, and "Brabazon Day," as it was called, was greatly looked forward to. In commenting on this scheme, an editorial in the same number of the *Journal* states, "Provided the work be carried on with the sympathy and accord of the asylum officials, as doubtless it would be, we see no objections to the Brabazon scheme in these institutions; at any rate, for our pauper asylums the plan appears to be well worthy of an extended trial." Such niggardly, negative praise and criticism seems to have reflected the average opinion, because this scheme apparently was regarded as a well-intentioned fad, and no attempt was made to extend its usefulness. In contrast, think of the time and money which has been expended on investigating the action of this or that drug, think of the discussions, many of them fruitless, which have waged round the use of hypnotism, suggestion, psychoanalysis, the action of the endocrines, etc., and yet a topic of the acknowledged importance of occupation has never previously been considered worthy of an afternoon's discussion by any division of the Medico-Psychological Association. Why has this been so? In my opinion, it has been due to the fact that occupational therapy has been regarded from the utilitarian and economic point of view, and the curative aspect, if considered at all, has largely been lost sight of. Many of you may repudiate that statement, but I maintain that it is so. No thought has been expended in prescribing work for the majority of our patients, but it has been largely a question of helping out our employees, and of sending so many to the garden, so many to the farm, the others to the laundry, the kitchen and the sewing-room. I agree at once that all such forms of employment are necessary and important, and no doubt many patients are happier so employed than in any other way. By all means let us maintain our garden squads and our kitchen workers, but don't let us stop there. Let us ask ourselves the further question—Have I expended all possible curative means? Is there anything more I can do to help this unfortunate man or

woman? In other words, instead of thinking in groups, we must develop a more individual touch than has ever previously characterized mental hospital organization. After all, in our educational system we have come to realize that it is useless attempting to teach children by set plans, but we must have a system elastic enough to suit all kinds of children. So it is in mental hospitals; we must not only be elastic and progressive, but we must take a broader view of mental disorders, and must think of them in a biological way. By so doing we will proceed a step further than our forefathers, and will be better able to apply the practical means of treatment. The accurate clinical symptomatological methods of Kraepelin, the dynamic, biological conceptions of Meyer, the investigations of Hoch and Amsden on personality and "make-up," and the stimulating and inspiring work of Freud, Jung and others, are all outstanding, making, it seems to me, epochs in the life-history of psychiatry. We do not now consider the sayings and acts of the mentally disordered as empty nothings, but we try to analyse the symptoms so as to understand their mechanism, and what they mean to the individual exhibiting them. In this way I am sure we come to a much better understanding of our patients, and therefore we must be in a position to treat them more skilfully and rationally than heretofore. This viewpoint is of particular importance in reference to such a topic as occupational therapy. For one reason or another, psychic, social, toxic, organic, patients suffering from mental disorder have been unable to hold their own; they have failed in their adaptations; they have become for the time being social failures. The majority of them are particularly conscious and sensitive about this, and however they may attempt to compensate, their innermost reaction is one of hopelessness. We have found in the past that with rest, watchful care, good nourishment, drugs, etc., an adequate compensation may sooner or later be built up, but there is nothing which will sooner and more satisfactorily increase a person's self-esteem than his ability to accomplish something. It does not matter in the least how simple the work is, provided it is successfully accomplished. It is therefore our duty to attempt to establish well co-ordinated, purposeful ways of doing things, instead of idleness, apathy, or inadequate reaction. We must plan and organize our patient's day, so that adequate time is provided for work and rest and play, so that interests are stimulated, and—to borrow a word from Meyer—exteriorized. Even although the patient has been a failure in the world at large, we must attempt to make him a success in his hospital environment, and if we are able to do that, there is no saying what further result may follow. This may all seem simple and commonplace, and easy

to arrange, but it is really a most difficult piece of work. It is not a question of arranging and planning the day for those who are willing to work, but it is a question of encouraging the unwilling, and of attempting to alter those activities which are perverted and misdirected. During the half-dozen years I spent in America, I was greatly impressed by the use of occupation as a means of treatment. During the past ten years further advances have taken place, and nearly every mental hospital throughout the United States has its occupational therapy department under an adequate *personnel*. This work seemed to me to be so valuable that I determined, if the chance ever arose, to make a start in this country along somewhat similar lines.

In 1919, with the co-operation of Miss Darney, who was Matron of the Hospital, a beginning was made in the development of this work. We had no trained help, but with the co-operation of the nurses, and of the patients themselves, a beginning was made with the simpler types of handicraft, and basket and raffia work, rug-making and leather work were started, and thus a nucleus was established. Under such circumstances it was not possible to have more than one class per day; we only reached the more intelligent patients, or those who were convalescing, and the particular trouble and difficulty was the lack of continuity, the irregularity of attendance, and the fact that there was no one person who was officially in charge, and responsible for its development. Even with such an inadequate arrangement, I felt that sufficient interest had been aroused, and that results had been obtained which warranted my placing the matter before the Directors. They immediately recognized the importance of such a form of treatment, and the good which might result from it, and they sanctioned the appointment of a whole-time occupational teacher. I was fortunate in being able to enlist the services of Miss Dorothea Robertson, and in December, 1922, she was appointed instructor in occupational therapy. During the past year Mr. Murray was appointed as her assistant. In addition, both the female and male nurses who accompany the patients are given a training in this work. The question of suitable *personnel* is probably the most difficult one, but an almost equally important matter is suitable accommodation. At the beginning we utilized a poorly-lit and badly ventilated room next the laundry, and the general surroundings were so uncongenial that many of the patients gave this as their reason for not wishing to take part. The Directors then agreed to sanction the erection of a suitable pavilion in a pleasant part of the grounds, detached altogether from the main buildings. This has been a great boon, and has added materially in the development of the work. The

short experience we have had has demonstrated, already, the need for even more accommodation.

Is all this, then, merely a fad, an idle dream, something which does not mean anything, of no practical importance, or does this occupational therapy really help us in attempting to cure and improve our cases? I believe that the arguments are all in favour of the latter view. Allow me to take an analogy from the war years. During those years there were large numbers of invalided and convalescent soldiers whose *moral* had at all costs to be maintained, because otherwise they became "grouzers," they developed bad habits of one kind or another, discipline was irksome to them. Now it was found at that time that the development of occupational and recreational activities made all the difference in the world, and practically every hospital had its occupational centre. The same is true to-day in the hospitals for the limbless, the blind, or those suffering from incurable conditions. The one constructive, helpful thing in these hospitals is the fact that occupational activities have been developed to suit the needs of the individual. It is recognized that if such patients do not have their minds healthily employed they will become depressed, morbid, introspective, but where an outlet in work and recreation is provided, a contented, happy frame of mind is developed. It is not the work or the recreation as such which is of importance, but the essential thing is that something is being done, that the patient proves to himself that he is able to do something for himself, that life, after all, is worth while, and in consequence, self-confidence, self-esteem, self-pride become born anew. The same principles have been recognized in the special schools and homes for the mentally defective, and in our reformatories and prisons. The great majority of our patients in mental hospitals have at one time had much better brains than those belonging to the "mind-lack" and "mind-twist" groups, and yet in some ways we have done less for them. We have been too content to follow the well-beaten paths; we have accepted the situation in a matter-of-fact way, and have been content to let well-enough alone.

In this paper I have not attempted to maintain that occupational therapy is the only way of treating cases of mental disorder, but I do wish to insist upon its great practical importance. I am certain that by its means many recoveries are hastened, many improvements are effected, good habits are substituted for bad ones, physical and mental deterioration are retarded, and life is made more enduring for the great bulk of our permanent population.

II.

By A. G. W. THOMSON, M.B.Glas., Senior Assistant Physician,
Glasgow Royal Mental Hospital.

THE purpose of this paper is to present to you my experience on the place and value of an occupation department in a mental hospital, to cite a number of cases illustrative of its varied usefulness, and to consider to some extent reasons which lie at the root of that usefulness.

Occupation as a means of helping the mentally sick is not new ; indeed it is probably one of the oldest, if not the oldest, of the methods that have been used throughout all time. Work is always a means of attack in such illness, and in all hospitals. There is, however, a considerable difference between these many modes of employment—whether in the kitchen, in the garden, the sewing-room, the fields or the workshops—and that of a definite, specially equipped department with its own staff.

In the one case, the patient is engaged in what one may well call the machinery of the institution, is employed and assists the wheels of the hospital to go round ; whereas in the case of the occupation department, the work is solely for the purpose of stimulating the patient to employ himself ; the employment of the patient as a therapeutic measure is the only object in view. (My use of the word "employment" throughout this paper is intended to refer to employment as a therapeutic measure, as one of our means of helping the alienated.) The two forms of employment above noted are not to be considered antagonistic, very far from it ; they are to supplement each other. The occupation department is frequently to be the means of a first step to that larger usefulness which helps the community. Those other activities continue as before and are as valuable as they formerly were.

Mention is made of these considerations, because the first thing that anyone asks is, " Is it necessary to add a special department, with special equipment and a special staff, to our hospital, when we have already so many excellent sources of occupation which stood by us well in the past ? Is this not another of these enthusiasms which sweep through the community, be it medical or lay, as pernicious and as lasting as, say, mah-jongg or roller-skating ? " I shall refer to this subject again ; but it is right in the first instance to draw attention to the fundamental difference above-noted, that the sole purpose of the occupation department is therapeutic.

It is right, also, that another matter be spoken of, namely the

nature of this particular hospital: for just as any phrase depends for its meaning and its value on its context—and any psychiatrist knows only too well the truth of that dictum—so the worth of any given opinion depends in large measure on the possibility of grasping the factors which come into play in the problem. This hospital is a private one; the average number of patients is comparatively small—about 500; and in addition to the usual fairly equal division of numbers by sex, there is a further division by rates of board—that latter division being unequal numerically, and indicating also, though in a rough way, the separation of those who have had greater social opportunity from those who have had less.

I mention those points because I do not in the least wish to dogmatize. Every hospital has its own nature; the requirements of a private hospital are different from those that are not; a hospital situated in an agricultural area must have needs of a different nature from one dealing with an urban population. For each of these an occupation department of a different type would have to be considered, because the original factors in the problem are different.

Allow me to quote a number of cases. The first three which I would refer to are cases in which I am of opinion that the occupation department was a definite aid towards recovery.

CASE 1.—The first case is that of a single woman, *æt.* 45, who was admitted to the Glasgow Royal Mental Hospital in June, 1922, in a state of acute depression, and following a suicidal attempt.

Her depression dated from three months previously, when she had had a hysterectomy performed.

On admission she was depressed, anxious and agitated, and had nihilistic ideas. This anxious, distressed condition continued during the earlier months of her stay, and she showed evidence of hallucinations. By November she became less agitated and restless, but was still very dull; although she could be got to brighten up momentarily.

By January, 1923, she had improved sufficiently to ask to get home and to have some hope that she might ultimately get better, and she was taking her food better and sleeping better. She was, however, still dull, and she continued so throughout the spring and early summer months.

In June, 1923, she was sent to the occupation class. At first she was on plain sewing and raffia, but with little result. It was when she was tried with work in coloured raffia that she became interested—as is evidenced by her request to take her work to the ward, so that she might work at it in out-of-class hours. That was a break from a level of monotony which she had been at before; and the result was obtained with the coloured work. Although her further progress was slow, she gave evidence of more initiative thereafter. She was discharged in February, 1924.

CASE 2.—A single woman, *æt.* 42, was admitted to the Glasgow Royal Mental Hospital in February, 1923, having been a patient also in 1911 and 1912.

In 1911 her case was one of excitement; in 1912 she was depressed. She kept well from her discharge in 1913 till, following an attack of rheumatic fever in December, 1922, she broke down in February, 1923.

Before and after admission she was noisy, over-talkative and over-active, and had violent outbursts, when she was dangerous to those around her. Even after three months she showed flight of ideas and distractibility, and she was still far too active. Throughout the summer and autumn her noisy restlessness continued;

and at times she was difficult, sometimes withdrawing into herself and sitting in a sullen way, not answering questions and taking notice of no one, or boisterous, interfering, destructive and mischievous.

She was sent to the Occupation Department in January, 1924, and for several days she was a regular "pickle," interfering with everything, stirring up patients and irritating them; but she was gradually coaxed to do a little work, and was finally "got at" by some raffia work in colour, and during the time of the class behaved well. Soon this good behaviour extended to the wards. Her interest in the work is shown by her asking to take some of it to the ward, as she wished to finish a particular stage of her piece of work, so that she might start the next stage of it the following morning.

She was discharged in March, 1924.

CASE 3.—The following single woman, *æt.* 40, was admitted to the Glasgow Royal Mental Hospital in October, 1923. She had been ill on three previous occasions.

After admission she showed very great excitement and restlessness, she was talkative and noisy, showed flight of ideas and distractability, and possibly had hallucinations of sight.

This restless, elated, talkative, interfering condition continued, and all attempts to get her to occupy herself were entirely fruitless. Such a state of affairs lasted till January, 1924, when she was sent to the Occupation Class.

On her first going there she was restless, irritable, and interfered with everything; but apparently the atmosphere of industry gradually had its effect, and she began to work, not always well at first, but she did work; and as time went on her capacity and the quality of her work improved steadily (she was engaged in rug-making).

I consider that the Department was an undoubted help in her case—a help over and above that which could be given her in the ordinary way; it appeared to me to hasten her improvement specifically.

She was discharged.

The following cases purpose to illustrate the amelioration which has been effected in cases where the general outlook is considered bad, cases where the intention is to sustain and retain the patient at as high a level as possible, even to raise him to a higher. The first three cases are in comparatively young people, and the fourth is in a very old-standing case, which had reached a stage of grave dementia.

CASE 4.—A young woman, *æt.* 26, was admitted to the Glasgow Royal Mental Hospital in December, 1921; she had been a patient previously in 1920.

Her first admission, in 1920, was characterized by acute excitement, restlessness, flight of ideas and distractability in the first instance, but by indifference and apathy before her discharge.

On her second admission she was apathetic and indifferent, had bouts of causeless laughter, grimaced, and stood in strange attitudes, and her habits were degenerated.

For six months she changed little, but that for the better—she could be occupied with sewing, was less catatonic, and she was cleaner in her habits. She then became extremely noisy and excited, hallucinated freely, and her habits and language were of the most degraded nature. After some months the acute phase passed, and she continued in a state of dull uninterestedness, which was broken periodically by bursts of hallucinatory conversation. She never occupied herself in any way.

This was much her state on being sent to the Occupation Department. At first she simply sat and gazed before her; but after a variety of trials she was stimulated when given pewter work to do. This she did well, and with fair interest—great interest compared with her previous apathy. There is no doubt in my mind that by this means her mental condition was lifted to and sustained at a higher level than it would otherwise have been.

CASE 5.—This is the case of a "Service" patient, a single man, *æt.* 24, on his admission to the Glasgow Royal Mental Hospital in December, 1918.

The patient served in Gallipoli, Egypt and France; he had dysentery, and was twice wounded in addition to the invaliding disability. He first took ill mentally

on July 6, 1918, in France, when he became subject to fits of uncontrollable laughter and talked to himself. He passed through various war hospitals before his admission to this hospital.

Here he was dull, apathetic and unemployable, with, at rare intervals, excitable outbursts, when he was dangerous and impulsive, on one such occasion declaiming that he was the Kaiser, and all-powerful. Hallucinations were present.

Throughout the following years he continued much the same, but the hallucinations became less dominating; he was very quiet, solitary and silent, and he did nothing.

On being sent to the Occupation Department he was tried at first on the simplest grade of work—that of sand-papery. For a time there was no change. He was next given basket-work; and now he is able to do good basket-work and also basket repairs. He is obviously brighter, more lively than he was, and much more accessible.

CASE 6.—The following is the case of a young unmarried man, *æt.* 35, admitted to this hospital in December, 1922.

At the age of 28 he had a mental breakdown, and was in the Crichton Royal from December, 1910, till June, 1917, suffering from delusions of persecution. After his discharge he joined the Army and served in France, and, for two years after the war, in India.

After his admission to the Glasgow Royal Mental Hospital he was extremely resistive and negativistic, sometimes having violent outbursts of excitement, at other times being mute and showing waxy flexibility. He was hallucinated.

He has become gradually more approachable, but continues moody, and has still bursts of excitement.

This man was sent to the occupation class, where he did rug-making and a variety of other work. He did fairly well, but it did not seem to have any special hold on him. Later he was tried at brass-work. The result was striking: there was a definite appeal to his imagination, and he went at the work with a will. He still has his bad days, but he is steadier than he was, more interested, more near to those about him, and altogether more approachable.

CASE 7.—This patient, single, and now *æt.* 58, first took ill at the age of 33, in 1899, and she had three attacks of mental illness before her admission to the Glasgow Royal Mental Hospital in 1909.

On her admission she believed that she was being persecuted by her sister and brother-in-law; she heard Divine commands and acted under their influence, breaking dishes, etc., and she refused her food.

In the course of years her delusions became bizarre, and she was more hallucinated. Her impulsive outbursts were more severe. Her general progress was downward, and as she became more deluded and the numerous schemes which she propounded more erratic and impossible, so her capacity for employment fell steadily, till latterly she did nothing—except give advice.

It was in this state that she was sent to the Occupation Class. On the first day she was as full of projects as ever, and, as was anticipated, she interfered with nearly everything within reach or sight—particularly with the paint bottles and a skein of silk (I was a witness to the performance). She was borne with, and, by her own choice, she commenced to paint a box. She was left to do it her own way, with results disastrous to the original colour scheme, but with excellent result as regards herself, for she got scope for her imagination. Within three days she was more settled. She enjoys the class, and she dislikes the day when there is none. In the ward she is more occupied and more industrious, and her behaviour is more settled and orderly.

The case which I propose to quote now I do to indicate the adequacy with which the Occupation Department adapts itself to the protean needs of the individual patient.

CASE 8.—This is the case of an unmarried lady, *æt.* 50, who was admitted to the Glasgow Royal Mental Hospital in March, 1923; she came in as a voluntary patient.

In addition to the present attack her history shows her to have suffered from attacks of mental illness which began at the age of 19, the second attack being

when she was 37, and others occurring at 41, 42 and 45. The last four attacks have been treated in this hospital.

The earlier attacks were characterised by manic features; over-activity, irritability, excitement; but in the last three attacks depressive symptoms, with dullness and inhibition of thought and action, have predominated, although short spells of over-energy and excitement have occurred. Hallucinations were present notably in one early attack, and again, but for a few days only, in the present one.

About September last she gradually settled down, and became a cheerful, natural member of the community—always, however, with a somewhat caustic tongue and dominant manner. In this state of betterment—as is usual with her—she is an active, excellent and teachable worker. She has one characteristic, common to herself and the type of her make-up: any work which she is doing she is interested in and does well; but she must always be doing something new. She starts any particular task, she attacks it with interest and with vigour; but after a time her general interest wanes, and she has to be stimulated by a form of work which she had not already attempted. It seems like a distractability in relation to work; the new is the attractive, the old is lacking in interest and is discarded. Already this lady has worked at china-painting, modelling of various kinds, lacquer-painting, brass-work, all in addition to many varieties of needle-work; all these she has done well.

The Occupation Department, with its more varied resources, gives the opportunity, and does help this lady in a manner that would otherwise be impossible.

These, then, are a number of cases which I am convinced were benefited through the agency of the Occupation Department, benefited in a manner that they would not have been with the other helps we have at our disposal, where the direct stimulus to improvement was the occupational work. Of necessity it must be a matter of personal opinion how we value any method of treatment; it is so in all medicine, but it is specially so in our own branch of medicine, where one of its baffling characteristics is the way in which our patients improve or become more ill for reasons which we are entirely unaware of; where it is far, far too easy to say that this or that nostrum is the source of the improvement; when, if the truth be known, the patient has improved, so to speak, in spite of us. Yet, while I take so guarded an attitude, I place the more weight on my conclusion. I am persuaded from my experience—which extended in this hospital to the period both before and after the advent of our Occupational Department—that the cases which I have mentioned were "got hold of" and aided by this means as they would not otherwise have been.

What are the forces that specially come into action in an occupation department? Some of them undoubtedly come into action in our other forms of employment; there are others which are not present at all. Personally, I think that the most important and specific factor is that alluded to earlier, namely, that the function of the department is therapeutics. It is the spirit that pervades every action, from the commencement of a policy to the choice of the most prosaic materials. Its eye is single.

Other influences are these. The actual leaving of the wards and the going to the occupation building are helpful in themselves; they break the routine of ward life, and add further variety to the day; they act as a stimulus to the dull, and to the excited they are a very simple mode of distraction. In the same way, the brightness and the cheeriness of the department, with its poster-pictures and its pleasant outlook, cannot fail to have an influence. All these things count, and that greatly. We speak from our experience of that period before the completion of the separate building, when the rooms in which occupational therapy was being done were not what we desired. At that time results were not so good as in the later period.

Suggestion is an important influence. Nothing has been more striking to me than the manner in which patients who are excitable, restless and difficult in their ordinary wards, and also on the first day that they come to the class, begin to be influenced by the sight of the others working; of how on a second visit they are hardly so restless; and at later visits manage to behave, perhaps not always in a fashion that is exemplary, but—most days—can keep a sufficient grip on themselves not to be disturbing. Suggestion comes into play, too, as an actual stimulus to work. One has great difficulty in picturing a healthy man sitting among a dozen others who were working without, after a time, beginning to feel that he must do something. Is it not one of the greatest signs of the abnormal state of our patients that so many can do so?

Another factor is variety. The variety of the work which is available in an occupation department is great; it is greater than could be possible in the ordinary course in a hospital. Things can be made which are not for use in the hospital [only, although these can be made also. The variety is of value, because what acts as a stimulus to one patient does not do so to another. When one fly fails to attract, another is cast, and the occupation teacher fishes with assiduity and with cunning, taking note of the psychic weather—whether clouds are about or whether it is clear—suggesting one variety of work at one time and perhaps different work on another occasion. Some patients will respond to work in raffia, for example, when they do not take an interest in basket-work; others will begin to co-operate when coloured raffia is made use of, when work in plain raffia was but half-heartedly done. One patient will—perhaps I should be better to say did—show an interest in brass-work, when formerly his efforts were mechanical. But I have already cited cases.

This subject of variety leads us by natural steps to the personal element. An Occupation Department has the opportunity, and it

has the means of moulding itself to the individual tastes and the aspirations of each personality in a manner that no ordinary departmental machinery can possibly do. It is able to get at the personal element in the patient; it makes some attempt to deal with the individual. That is a most potent thing.

The personal element applies also to the staff of the Department. The meeting of man and man, of teacher and patient, is the most crucial element of all. It is common to every part of our hospital work; without it every means would be unavailing. For the period of the class a massed attack is made, aided by all the various artillery of the occupational ordnance.

Where, then, are we to place the occupational department in our therapeutic domain? It is no cure-all. No greater harm can be done to the cause of occupational work—in the end—than to go forth blowing trumpets and declaring that the millenium has come. "Boosting" is its own reward, and at the last only its own. It kills what it would cherish. The reaction is likely to be as devastating as it is rapid. But I do say—and I say it without hesitation—that an occupation department gets at some patients whom we would fail to get in touch with otherwise, that it hastens by its natural interests and activities the cure of those whose cure would linger, and that in other cases it has sustained at or actually lifted the patients to a higher level than that to which they would have fallen. The end of the department is employment, and to that end is bent every force of example, of suggestion and of personal influence; not at haphazard, but with purpose and with forethought for the need and the requirement of the individual patient, and what he aspires to or is capable of.

I consider it the most important material instrument which we have in our hands.

III.

By Miss BRODIE, Lady Superintendent, Glasgow Royal Mental Hospital.

WORK has interested man throughout all the ages. The Jews of old held clean and honest work in great esteem. No such work was beneath their dignity. "Work," says Ruskin, "is a thing done because it ought to be done, and with a determined end." In order, however, to get something of the spirit of play into our work, it should be pleasing and interesting. Work for the mentally afflicted should be regarded from a therapeutic rather than an economic view-point. There have been difficulties in the way

the difficulty of introducing a sufficient variety, or work to suit all tastes, and the lack of suitable rooms, where such work could be carried on under healthy conditions, materials stored, and tools kept together. This is possible with a special occupation department. Classes are formed, and the teachers and nurses give individual attention to the backward members. The plan works well. Nearly all are interested, and even the restless settle down wonderfully to their respective tasks. Not all patients find their interest in the lighter crafts. Some find it in the garden, in the sewing-room, in the laundry, and in the kitchen.

Practicality must be the test of all our work, however idealistic. In the rate-supported institutions, where the economic aspect cannot be disregarded, careful selection, with a due regard to the inclination of the individual, would have to be made in order to get help for all departments. Any arrangement which would tend to deprive even one department of its quota of workers would be unwise. Even here, private hospital though it is, this point of view has not been lost sight of, as is evidenced by the amount of work which continues to be done. To mention only one item—the uniforms of the nursing and domestic staffs are made here, with the help of the patients.

It has often been suggested that a patient should not be utilized at his own trade, but should be given a change of occupation. There does not seem to be, in general, any good reason for this argument. The boot-maker, for instance, who is good at his job, would find his greatest joy in turning out a boot worthy of his best efforts.

To get all this work carried through, it is evident that there must be co-operation and a great deal of effort on the part of the staff. For instruction in the handicrafts, teachers are required, but for the every-day work of the hospital, and the greater encouragement of the patients, the nursing staff must bear the burden. In addition to the homelier virtues of darning and dressmaking, a knowledge of handicrafts is an asset to the mental nurse. Indeed, the nurse who possesses such knowledge, in addition to her other qualifications, is of value not only to the hospital, but beyond the hospital, in the nursing of private cases. We have had, and still have, such nurses on our staff, both male and female. It seems likely that there will be increased opportunities for obtaining such experience in the mental hospitals in future. Second only to the primary duty of caring and tending, the nurse should place that of interesting and amusing the patients.

It would seem that with all this labour to command, the mental hospitals could be made to contribute more largely to their own

support than is the case at present. The chief difficulty in this connection is to find a market for the wares.

The question is sometimes asked, "Do the patients get any recompense?" It is true that all work should be, and usually is, valued for its own sake, and not primarily for the remuneration it brings. But some sort of payment enhances the self-respect, and creates a feeling of independence amongst those who are dependent on the State for their support, and considered in this light, payment of a suitable kind ought to be encouraged.

IV.

By Miss DOROTHEA ROBERTSON, B.A. Cantab., Instructress, Occupation Department, Glasgow Royal Mental Hospital.

ALTHOUGH the term "occupational therapy" may be a comparatively recent one, there has always been a certain amount of employment in every mental hospital. There is a large amount of sewing, knitting, and other domestic work for the women and gardening, farm-work, etc., for the men which must be done. These duties have always employed a number of patients, and will continue to do so. But there are many patients who are not attracted by such occupations. Some of them have said to me, "We are not here to work; we are here because we are ill," or "We might as well be at home doing the work there as doing it here." These patients need something different, something to which they are unaccustomed, something more stimulating, and occupational therapy seems to supply this.

Other patients, not interested in ordinary sewing or housework, but who would like to do something, see examples of various crafts, and are attracted to one because of its beauty or its usefulness, and feel they would like to learn it. There are others still who have lost all interest in work, and do not want to do anything, or who have lost confidence, and feel they cannot do anything. The atmosphere of the class-room infects them. They see everyone around them doing work—a contrast to the wards, where so many sit about listlessly, or else walk to and fro without any definite purpose. They need a lot of coaxing to begin work, saying at first to all work you offer them, no matter how simple it is, that they cannot do it. Patients have attended the classes for weeks before they could be persuaded to do anything, but there has only been one who absolutely refused to commence any kind of work. She has now begun looking at work other patients are doing, so she may eventually be persuaded to try.

The Occupation Department, too, meets the requirements of the individual in a way that the routine work of the hospital cannot do. It offers a choice of various crafts, and it is a question of finding out which is best suited to each patient. This does not rest entirely with the Occupation Department, as, with each new patient, the medical officer sends a chit recommending the type of work he thinks most suitable for the particular patient, and stating what precautions are to be taken. These chits are very necessary.

The average daily attendance is about 100, and the classes are usually of 1½ hours' duration. Many patients who have been at a class in the morning like to come again in the afternoon, and "parole" patients spend just as much time as they like in the class-rooms.

When the Occupation Department was first started, one of the chief difficulties was the accommodation. The two rooms used as class-rooms were rather dull, and had very little sunshine. Many patients came a few times, and then stopped because of this. The present building, with a southern exposure, is light and airy, attractively painted inside, and so situated as to be convenient to hold the classes outside in fine weather, as we hope to do.

The classes are graded and patients as they improve are moved up.

The chief difficulty as regards the ladies is that they seem so much more conservative than men. It is much more difficult to get them to try anything new. They would much rather do sewing or knitting. This is particularly noticeable among the patients who have been resident a long time. Knitting is very soothing for a certain type of patient, but, unfortunately, it is not always the patients who would be most benefited by it who engage in it, but others who really need to be roused and not soothed. They are inclined to reject cane-work, painting or modelling, because the materials are strange, and they have only been accustomed to using a needle or knitting-pins. With patients of this type it is useful to get them to do some embroidery, where they have to work out the design for themselves, even if it is only a simple darning stitch with brightly coloured wools on a piece of old blanket which can afterwards be made into a work-bag, or an easy embroidery stitch with raffia on canvas. When they have learned that, they can do something a little different, and be more interested in trying something altogether new.

With the newer patients who have not through years of residence become accustomed to thinking that the ordinary routine work of the hospital is the only work they can do, the question of interest and occupying them is usually very much easier.

The principal crafts for the ladies are raffia and pine-needle

basketry, raffia and other embroidery, underglaze and overglaze painting, colour craft work, rug-making, and a little metal work.

Raffia and pine-needle basketry is very beneficial for excited patients. Results are not obtained quickly, the design is simple, though, of course, they can work in a complicated design if they choose; they can blend their own colours, and the time from the beginning to the production of the finished article is not so long as to allow it to become tedious or irksome. This work, too, is suitable for being taken to the wards, where it can be continued, and may help to keep a restless and excited patient from annoying or interfering with the others.

In both underglaze and overglaze painting the results are achieved quickly, and the colouring is bright and pleasing. Patients who say, "Oh no, I couldn't do that, I've never painted," are surprised and delighted when they find that after all they can do it. It is important that the patient, if he or she is not able to make an original design, should draw on the design selected, and so have the satisfaction of knowing, when the article is completed, that the work is all his or her own. The designs chosen are very simple, and of such a character that a slight unsteadiness of the brush does not spoil the effect as a whole. This craft has been particularly successful with both men and women, partly, perhaps, because of the quick result, partly because of the attractive colourings, and partly also because of the feeling of confidence it inspires. So many people are so unaccustomed to using a brush, and so apt to think that one must be a "pukka" artist to do drawing or painting of any kind. One lady remarked, "The week I learned china painting has been the happiest I have spent in hospital."

Colour craft work, which is the modelling of a certain kind of clay into fruit or flowers, which are afterwards painted and used to decorate *papier-maché* ware, is extremely interesting. It requires much closer application and much more self-control than any of the other crafts we have tried. The patients usually find it a bit tedious at first, but when persuaded to continue, it seems to take a hold on them, and they become very much interested. The finished article is very attractive. Two very excited patients who were rather difficult to interest were shown examples of the various crafts, and both decided that they would like to do colour craft-work.

The men, on the whole, are more easily interested than the women—perhaps because to many of them all the craft-work is new, or perhaps because men are more accustomed to working for certain definite periods each day.

The chief crafts for the men are cane-work, metal-work, simple carpentry, rug-making, toy-making, and painting.

Cane-work is one of the most useful of the crafts. It is excellent for patients for whom precautions must be exercised. In its simplest form, using one strand of cane as a weaver, it is so easy that where a patient can co-operate at all, he can usually master it. It helps patients who have lost confidence in themselves to regain their self-esteem. They can so easily gauge their progress for themselves. A patient starts weaving with one weaver; when he has learned that he proceeds to use two, three or four weavers, and is conscious that each one is a step forward. From making baskets and trays he progresses to cake-stands, and later to chairs, both of which embody the principles of cane-weaving he learned first, but which, as finished articles, show a much more satisfactory result than a simple basket or tray. So far chairs have been the height of our ambition, but we are now going to make cane tables, settees, standard and table lamps. We have not yet arrived at the stage of being able to make the frames, so these have had to be made elsewhere.

Rug-making is not one of the crafts which appeals. As the work is slow, it is a long time before the patient can see the finished article. At the same time, it is one of the most valuable forms of occupation when patients become interested in it. It develops steadiness, concentration, and application, all of which are required if the pattern is to be successfully carried out. Colour plays an important part in this craft, and patients learn to make their own designs and choose their own colourings. Those who have become interested in this craft invariably want to take their work to the ward, so that they may continue when not at the class. It is often advisable with patients who have not done any similar work to start two on a rug, one at each end, as the competition stimulates interest.

At the carpentry bench the principal articles made are bases for baskets and trays, frames for toy barrows, bookrests, work-stands, and stools of which the seats are afterwards woven with dyed twine or sea grass.

I cannot say much at present of the value of toy-making, because we have not yet done enough of it. But I believe it should provide great scope for individuality both in form and colouring.

Metal work has been commenced within the last few months, and already we have some very fine pieces of work. It was first started by a deluded, hallucinated and incoherent patient, who had been tried with cane-work, rug-making and carpentry. Although he did some work at each of these, none of them seemed to grip him. He

was always ready to stop and sing, or amuse himself with a paper trumpet. The hammering of the brass seemed to supply the outlet his energy needed. He now works diligently, and takes great pride in his work, comparing each finished piece with his previous work to see if he has improved. Another patient of the same type who had done excellent work at chair-making seemed to be getting lazy, and was judged by the medical officers to be making no progress. He refused to try any of the other crafts, saying he preferred to make chairs, but was finally persuaded to try metal work. He is now much more active and interested, and attends classes both morning and afternoon. This case is quoted to show the need for variety. Some patients, of course, would like to try something new every day, but must be encouraged to finish one thing before starting on another. There are others who, having learned one craft, want, of their own accord, to try another. They must be permitted or their interest wanes. Those who always want to continue doing the same thing, either from lack of confidence, or because they do not wish to make any fresh mental effort, ought to be given new work of some kind, so that their self-confidence may be increased by the knowledge that they can do something hitherto untried.

It has been suggested to me on several occasions that, as this is a hospital where the patients are from the educated classes, it is easier to get them interested in craft-work, and easier for them to attain that degree of proficiency which makes them proud of their work, because probably many of them have previously had craft lessons. So far as I know, only four of those attending the classes have had any previous experience in craft-work. I am sure that in mental hospitals of all types it is possible to secure just as good a response from the patients as we do here, and to accomplish just as desirable results from the therapeutic standpoint.

A sale of work is held to dispose of the articles made in the Occupation Department, and the proceeds are used to buy new equipment and materials. Patients who wish to acquire a piece of their own work are allowed to do so on paying the cost of the materials. It should be remembered that the chief aim of occupational therapy is therapeutic, and not commercial or economical. But it undoubtedly helps a patient to regain self-confidence when he finds that he can make an article which is saleable for its beauty or usefulness, and not because of any sentimental value it may possess because of having been made in a mental hospital. The patients are encouraged to do something, and to keep on doing something, even though the results may be quite unsatisfactory from a commercial point of view.

Nor is occupational therapy meant seriously as a training for future employment. At the same time, one lady wished to make use of the crafts she had learned, and took some examples of her work to one of the leading shops in town. She was told that if she would work exclusively for them, they would buy as much of her work as she cared to bring them. She feels that when she goes home she will be able to augment her income and be less dependent on her friends. This is only an isolated case, and though patients may afterwards continue the crafts they have learned, as hobbies, their effect is intended to be curative and not vocational.

We all know how we enjoyed the ten minutes' break in the middle of the morning's lessons at school. Every day that weather permits the men now have a game, and the ten minutes' play seems to have the same effect on the occupational classes as on the children. Even the dullest brighten up, and come into the class-room afterwards much more awake, and ready to take fresh interest in their work.

The patients have learned to like the occupational class. They look forward to it as breaking the monotony of the day. One lady who has been twenty-five years in hospital, and who had done no constructional work until she came to the class, said, "Oh, I don't like Sundays because there is no class." Expressions like "It wouldn't be Gartnavel without the occupation class now," are very common, and show that it provides a real interest in their lives.

The Case of Richard Loeb and Nathan Leopold. By
M. HAMBLIN SMITH, M.A., M.D., and ANNE FAIRWEATHER,
M.B., B.S.

AMERICA has lately been the scene of a murder, and a consequent trial, both of which were remarkable even for that land of sensations. The circumstances of the crime were quite out of the ordinary. The questions discussed at the trial were of the utmost psychological and medico-legal importance. The local newspaper reports, together with many other details, were sent to us through the kindness of Mr. Stephen M. Reynolds, of Chicago. We thus have information which few, if any, in this country possess. The actual trial lasted thirty-two days. The mere reading of the reports was a heavy task. We then had to separate from the mass of journalism those points in the evidence which might be taken as established. And we think that a summary thereof may be of general interest.

On May 22, 1924, Mr. Jacob Franks, a wealthy resident of Chicago, received a typewritten letter, informing him that his fourteen-year-old son, Robert, had been kidnapped, and was being held for ransom. The sum of ten thousand dollars was demanded, in default of which payment the father was told that his son would be killed. Precise directions were given as to the manner in which the money was to be paid. It would appear that Mr. Franks was making preparations to hand over the money, when he received information that the murdered body of his son had been found in a culvert, on a road in a somewhat lonely district of Chicago. As would be expected, the occurrence aroused great excitement in the city. Not only the police, but also a large body of the inhabitants, occupied themselves with the attempt to trace the perpetrators of so apparently motiveless a crime. A few feet from the place at which the body had been discovered, there was found a pair of spectacles, the ownership of which was traced to one of two students at local universities. These two young men were arrested. Soon after their arrest they confessed to having committed the crime. And it is around them that the interest gathers.

The names of this pair, who will for ever stand prominent in medico-legal annals, were Richard Loeb and Nathan L. Leopold, jun. The former was eighteen and the latter nineteen years of age. Both had the distinction of having been the youngest graduates in the history of their respective colleges. Both were the sons of very wealthy parents, and had enjoyed the advantage (if such it be) of every luxury in their upbringing. Leopold was recognized as of quite exceptional intellectual powers. He was an authority on ornithology, and held classes in that subject at considerable fees. He had strayed from the paths of ordinary reading into those of sixteenth-century crime and emotional literature. Loeb, on the other hand, preferred to read detective stories. Later we shall see that these tastes in reading are of some importance. In their confessions they admitted that since November, 1923, they had contemplated committing a murder. Both their families were friendly with that of the murdered boy. They had no animosity against young Franks; indeed, he became the victim quite by chance. A son of any wealthy father would have done as well. They desired to commit a murder simply in order to experience a hitherto untasted "thrill" and to plan and carry out a "perfect crime." They had carefully considered every detail, and had taken every precaution to avoid detection. They lured the boy into a motor car, killed him by striking him on the head with a spanner, drove with the body around the city, even stopped at a restaurant for refreshments. They stripped the body, poured hydrochloric

acid over the face in order to prevent identification, and placed the body in the culvert. They then took pains to destroy all traces of the crime. And it was only the accidental dropping of Leopold's spectacles which put suspicion on their track. We must apologize for giving all these rather morbid details, but some knowledge of them is essential to any understanding of the crime. Although the confessions were obtained by methods which are unknown to our police procedure, there seems no reason to doubt their essentially genuine character, but the possibility of some element of fantasy must, however, be duly considered in its place.

Such, then, were the facts which first came under our notice. It may be well to pause and consider what we may already assert about the crime. Firstly, whenever we get a crime of this kind committed by two persons we may be sure that one of the two has been the master mind. We were at first disposed to think that, in this case, it was Leopold, on account of his pre-eminent intellectuality. We shall see that this conjecture was wrong, and that Loeb was the leader. Secondly, it has been pointed out by Healy(1) and others that in these cases we always get some sex bond between the parties, either some actual sex connection, or the joint possession of some sex secret. This was borne out here. The two had been concerned in some mutual sex perversions, either on four occasions or, as seems more likely, of four different varieties. We have no details. It would be interesting to know whether Leopold was the passive partner. Thirdly, what was the actual reason for the crime? It was said by many that the crime was the natural outcome of the lads' unrestrained and luxurious upbringing, and that it was simply due to pure "wickedness." Few of us will be content with so easy an "explanation." The question is clearly one for investigation. We must endeavour to explore the lads' unconscious, so far as this may be done, and to elicit the repressed complex which will always be found at the root of an offence of this character. Even Freud's opponents will, we think, be disposed to admit that the complex, in such a case as this, will be found to be of a sex character.

It is obvious that the defending lawyers could only suggest some mental aberration. Alienists from various parts of America were engaged to make examinations for the defence, and some were invited to come from Europe. The prosecuting lawyers, anticipating the line which the defence would take, also called in experts. And it is the evidence given by these rival experts which will provide the interest in this paper. A consultation between the two bodies of experts, with a view to some common report, was proposed by the defence, but rejected by the other side. In view of certain

proposals which have been made in this country, it would have been interesting to have seen what the "highest common factor" of such a joint report would have proved to be.

The trial began on July 23, before Judge Calverly, of the Chicago Criminal Court. There was, at once, a dramatic surprise. It had been expected that Mr. Clarence L. Darrow, the attorney for the defence, and the author of the well-known book, *Crime, Its Cause and Treatment*, would have tried for a verdict of "guilty but insane." He did not, however, adopt this course. He admitted the "legal sanity" of the accused, who on his advice pleaded "guilty." (The legal criteria of "irresponsibility" appear to be governed in Illinois by something akin to the McNaughton rules.) And he then announced his intention of bringing forward medical and psychological evidence, with a view to the mitigation of the sentence. The propriety of admitting this evidence occasioned a most acrimonious wrangle between Mr. Crowe, the prosecuting State's attorney, and the judge. The latter ruled that he would hear this evidence, and also any rebutting evidence which the prosecution saw fit to call. It is necessary to allude here to a most important difference between American and English criminal law. There is in this country only one sentence for the crime of wilful murder, although mitigating evidence can be placed before the Home Secretary when the sentence comes under his consideration. In America the law is quite other. Some States have abolished the death penalty. In the State of Illinois the death penalty has been retained. But there are other possible penalties for wilful murder, namely imprisonment for a period ranging from fourteen years to life. It was this last penalty which the defence invited the judge, in his discretion, to inflict.

There was another reason, of some psychological importance, which may have weighed with Mr. Darrow in his decision to avoid bringing the case before a jury. So sensational a crime naturally produced the usual sadistic desire for vengeance. There was a perfect howl for vengeance on the part of a certain section of the press. It is interesting to note that the parents of the murdered boy were by no means vindictive. They asked nothing more than a life sentence, and that for the sake of public safety. It is an illustration of what McConnell (2) has said, that the State, with its quite unrestrained power, may be a far more terrible avenger than any injured private person. The newspapers commented on the case with a freedom which would never have been permitted here. The lives of the judge, the defending counsel, and the medical witnesses were threatened by anonymous writers if they did anything to assist in releasing the prisoners from the death penalty.

And it is quite likely that no jury could have been empanelled which would have had any claim to the title of impartial.

The prosecution pressed for a death sentence, and took some days to place before the court the details of the commission of the crime. On the part of the prosecution the trial was conducted in a manner with which we are, fortunately, unacquainted in this country. For a parallel to the behaviour of Mr. Crowe we should have to go back to the old State trials for political offences. He vehemently urged a capital sentence, vilified the accused, described certain of the alienists as the "three wise men from the east," characterizing their evidence by the elegant term of "tommy-rot," hinted that Dr. Glueck could not be trusted not to falsify his notes, and finally accused the judge of being partial to the prisoners. For this last offence against professional etiquette and common decency he drew upon himself a severe and well-merited rebuke. The demeanour of Mr. Darrow, for the defence, was in striking contrast. Faced with a situation of appalling difficulty, he appears to have maintained a calm demeanour throughout, and his final speech was a masterpiece of forensic eloquence.

A preliminary report, upon which the defence, no doubt, acted, was made by Drs. H. S. Hulbert, of Chicago, and Karl Murdock Bowman, of Boston. This was based upon an examination which lasted over eight days, and was of a most exhaustive character. According to this report, Leopold "had been, in childhood, intensely nervous, not fond of games, much interested in various forms of religion, boastful and self-centred. At the age of 6 years he had appreciated sex a little, and at 7 years realized it to be taboo, but had no real conception of sex. At an early age he came under the influence of a governess who 'displaced' his mother, and who made difficulties between him and the other members of his family. There is some reason to think that this woman was feeble-minded. At the age of 15 he had his first sex experience with a girl. After this he had numerous sex relations, not because he wanted to, but because it was 'the thing to do.' He would boast of his sex relations with 'decent' girls, although this was not true. He had marked sex fantasies, especially one of a woman being ill-treated by a man. He was never really attracted by women, and did not look forward with any particular emotion to marriage. He got on well at school. At the age of 16 he went to college. He drank fairly heavily there. He took a course in Sanskrit, because he wanted to 'be different to other people.' He appears to have tried to repress his emotions, and wished to pose as a 'cold-blooded intellectual.' But he appreciates that he is actually a very sensitive individual with a marked feeling of inferiority, who-

adopts this pose as a defence reaction. He found it difficult to make friends, especially with women, and this produced a marked compensatory superiority. He had one remarkable fantasy, which he described by the name of the 'King and slave,' he, in nearly every case of this, being the slave. He always imagined himself as being good-looking and strong, and as saving the king's life. He also had a fantasy of a French girl being ill-treated by German soldiers. Once, when he was supposed to have appendicitis, he had the idea that "a balloon of pus was forming in his abdomen." (This may have been a fantasy of pregnancy.) "His note-book was full of erotic drawings and poems. There was one drawing of a bell hanging from a gallows, and labelled, 'Nathan's shrine, Eternity, Maternity.' He had vague hallucinations, but he tended to minimize these. He felt physically inferior to his companions, but intellectually superior." (And this last was certainly true.) "He admitted numerous delinquencies. He had stolen stamps and other things from his friends and relations. At Loeb's suggestion he had cheated at cards. With Loeb he had stolen electric cars, had let off burglar and fire alarms and made bogus telephone calls. He had started one fire, and probably more." (It may, of course, be that some of these alleged delinquencies were fantasies.) "The two had also robbed the 'fraternity' house at the university. He had made a pact with Loeb, which placed him absolutely under Loeb's orders, with the sole condition that he should not be asked to do anything which would make him look ridiculous in the eyes of his family. They had agreed to strangle their selected victim together, so that each should be equally guilty." (As a fact this was not done, and the actual murder was committed by Loeb.) "After the crime he had felt upset, and had said, 'My God, this is awful!' (This point was confirmed by Loeb.) "But he knew what he was doing, and had no remorse. He lacked ethical sense, and was very deficient in emotional reactions. He had a marked sex drive, which he was unable to satisfy in the normal manner, and this had upset his emotions."

It is clear that we have here a lad of high intellectual capacity, but with a strong inferiority complex. There are, obviously, marked homosexual traits, with masochistic tendencies, and feminine fantasies are apparent. Such fantasies, in which the subject pictures himself as a woman, are much more common than is generally known. Leopold may certainly be regarded as a psychopathic personality. And the split between his intellectual and his emotional processes make it at least likely that he may develop dementia præcox.

As regards Loeb, Dr. Hulbert says, "he was a sickly child until

he had his tonsils and adenoids removed at the age of 4½ years. He worshipped his father. He began to stammer when he was 12, and still does this to some extent. He has had tremors of the face for the past three years, which are worse when he is at all excited. He had a governess of whom he was exceedingly fond, and who was fond of him. He preferred going out with her to being with other boys. She was extremely strict, and he used to tell her lies to prevent her punishing him. She appears to have occasioned some friction in the family, and to have made him think that he was not understood by his relations, and that he was not wanted at home. He was a physical coward. He was not afraid of new punishments, but he was very much afraid of punishments which he had already experienced. He looked forward to marriage with 'some one sweet and pretty rather than intellectual.' He had many girl friends, but no serious attachments. He had played at being a detective until he was 17 years of age. He had marked fantasies, in which he was always the leader. It is true that he often fantasied himself as in gaol, pushed about and abused, but this was because he was the 'master criminal.' He liked to imagine himself with a group of followers, who looked up to him. He liked to plan crimes which would be the sensation of the century, but in which his part would never be discovered. He talked in a boastful way about his successes with girls, and told tales of imaginary shooting bouts in which he had taken part." (These last may have been fantasies.) "He began to steal at the age of 8 years. He stole from a boy who lived next door. He started a lemonade stall with another small boy, and decamped with the contents of the stall and the money. His criminal exploits with Leopold have already been detailed. His basal metabolism was 17 *per cent.* below normal." There was other medical evidence which showed that he had sustained concussion as the result of a motor accident at the age of 15 years, and that he had fainting attacks in 1920.

Loeb may be regarded as a paranoid personality, or as a case of psychic constitutional inferiority (3). There is, as with Leopold, a marked inferiority complex here, for which the fantasies are an attempt at compensation. And this complex would seem to have been more repressed than in Leopold's case.

In his evidence in court Dr. Hulbert amplified his report. He stated that Loeb had thought of killing Leopold, because the latter knew too much. The kidnapping had been the main feature of the crime; the ransom was only introduced as a secondary consideration, because kidnapping without ransom would not appeal to the average person as a "normal" crime. For this last reason they had rejected a contemplated plan of murdering a member of

one of their families, on account of the difficulty of collecting the ransom. Loeb, feeling inferior to other boys, because he could not compete on equal terms with them in games, indulged in fantasies wherein he was superior to others, so achieving the superiority denied in actual life. The conflict was in the inner mental life, but affected his conduct towards others. There was a close relation between the abnormalities of Loeb's endocrine system and his mental condition. Intellectually he was above the average, but his emotional reactions were much below normal. He was childish in matters of judgment. This discrepancy was greater than normal. Of Leopold, Dr. Hulbert said that his pineal gland had calcified early; the thymus had involuted early; the sella turcica was small and was causing congestion of the pituitary body; the thyroid was definitely diseased, and was hyperactive; the adrenals were insufficient. He had early confused the Madonna with his own mother. He was of the verbalist type, and had the intelligence of a man of 30 years of age. Dr. Hulbert considered that the psychiatric cause for the pact was not to be found in either lad alone, but in the interplay between them. Their emotional deficiency was the driving power to the crime: their intelligence made them anxious not to be caught: their judgment was so immature that they never contemplated being caught. The friendship was not altogether pleasant to either, and was based on need rather than on desire. He regarded the crime itself as an eminent instance of defective judgment. And he considered that the selection by Loeb of easy courses at college was an example of his poor judgment.

Dr. Sanger Brown, of Kenilworth Sanitarium, also made a report. In his view Loeb was the leader and Leopold the subordinate. He regarded Loeb as a case of moral insanity. Loeb was unable to perceive, feel, or respond normally to the various obligations of social and moral life. Dr. Sanger Brown looked upon Leopold as the subject of a morbid condition. Leopold had a very strong feeling for Loeb, and regarded the possible loss of his favour as the supreme calamity. Leopold was compelled to conform to Loeb's wishes, partly from constant association, and partly from the development of a kind of philosophy in which he schooled himself to suppress his scruples. Loeb would not have to reckon with his conscience at all.

A third report was made by Dr. James Whitney Hall, who looked upon both lads as psychopathic inferiors. Their mental make-up entirely unfitted them for society. Loeb, the infantile adult, committed crime simply because he wanted to. Leopold had a definite philosophy based upon egocentric ideas. Dr. Hall considered

that the ransom only gave an additional "kick and thrill" to their plans.

Dr. William Healy, of Boston, also gave evidence. He considered Leopold to be of super-intellect, Loeb to be about normal in this direction. Loeb had a thoroughly diseased mental life. "He is a case of abnormal split personality, with obsessive thought and life. His acts are directly dependent upon, and are made possible by, his abnormal thought and life and his abnormal displaced emotional life. He is, in fact, a case of dual personality. He has a great desire for sympathy in childish and pathological ways." Dr. Healy regarded Leopold as definitely suffering from psychosis. Loeb had carried the fantasy life of infancy into the everyday life of action. Dr. Healy agreed that the crime was only made possible by the fusion of the two lads. Childish fantasy planned the crime, intellect carried it out. Planning for one's own defence was not unusual in cases of mental disease.

Dr. Bernard Glueck gave evidence. He stated that Loeb had felt that he was not wanted at home. His lack of emotion was only explicable on the grounds of a disordered personality. He had been sent to the university at the early age of 14½ years, and had thus been thrust into a life for which he was not ready. He was not regarded as grown-up by his college friends. (There was also lay evidence in support of this point.) In Loeb there was a profound discord between his intellectual and emotional lives. His fantasies, being continuous, had come to act like compulsive thoughts. Leopold was attractive to Loeb, because Loeb had the privilege of planning the details of crimes with an intellectually superior person. Leopold, Dr. Glueck regarded as having a paranoid conception of his ego. Leopold argued with a richness only found in those with a disordered mental background. Dr. Glueck considered him very near to the manic phase of manic-depressive psychosis. His fantasy life was real to him. Leopold found in Loeb the opportunity to go to the limit in abject submission to him whom he idealized as king. He was even jealous of the food and drink which Loeb took. Dr. Glueck also agreed that the crime was inexplicable save by the fusion of the two lads.

Dr. William A. White, of St. Elizabeth's, Washington, also gave evidence, but our report of this is, unfortunately, quite inadequate.

It will have been noticed that the defence, whilst admitting the "legal sanity" of the accused, put forward a number of alternative theories for the consideration of the court. It would be inaccurate to describe these theories as "defences," for the accused having pleaded guilty, there was, technically, no defence. Perhaps the theories can be best described as explanations, tending to minimize

the enormity of the crime, by showing that it was not the result of wilful and uncaused wickedness. For the final speeches showed that, whether the fact was fully recognized or not, this fundamental question was at the root of all the difference of opinion on the case. The explanations offered by the defence may be summed up as (a) split personality, (b) psychopathic personality, (c) constitutional inferiority, (d) glandular disorder, or inferiority, (e) dementia præcox. Of Leopold it was asserted that he was a case of manic-depressive psychosis, and of Loeb that he was a case of moral insanity. Without discussing all these various theories, for some of which the evidence at our disposal is not very convincing, and some of which are really questions of nomenclature, we may say that there seems much evidence that the crime was the result of repressed mental conflict in both the lads. These conflicts were of so peculiar a character that joint action by the two lads was necessary. Neither would have been capable of committing the crime alone. Such a crime is the product rather than the sum of the respective activities of the joint perpetrators. Fusion is necessary, as in a chemical reaction (4). If psycho-analysis were possible, the results would be of intense interest. There was evidence that the lads were really anxious to understand themselves, and, in that event, the necessary element of co-operation would not be wanting. From a scientific point of view the multiplication of theories is to be deprecated. But probably the mere number of them produced a cumulative effect upon the court, and assisted in attaining the end at which the defence aimed.

The prosecution was also provided with expert evidence.

Dr. Hugh T. Patrick was called. Hypothetical questions, containing part of the evidence of the alienists for the defence, were put to him, after the American fashion. He stated that, on these facts, he saw no reason to think that there was any mental disease in the accused. He had also examined the accused, with the same conclusion, apart from the fact that they had committed an atrocious murder. He held that fantasy was an entirely normal process. He considered that an inferiority complex was quite a normal thing in one who was not good at sports. He considered that the Hulbert-Bowman report showed that Leopold was fully developed emotionally.

Dr. Archibald Church, of Chicago, found no evidence of mental disease in either of the accused. He said that intellect and emotion could not be divorced, though he admitted that emotion could be instinctive. He found distinct lack of emotion in Leopold, but Loeb displayed some emotion. He had made no attempt to obtain their life-histories. He held that the endocrine glands had something

to do with conduct. Fantasies had an effect upon character, and modified conduct. Delusions might start as fantasies. He admitted that in playing detective until 17 years of age Loeb was somewhat abnormal.

Dr. Harold Douglas Singer, of Chicago, had seen nothing abnormal in the lads. Fantasies, he said, represented longings which could not be expressed without causing difficulties in life. Under modern social conditions fantasies were valuable. Fantasy life only became pathological when the individual became incapable of appreciating the difference between fantasy and reality. A paranoid personality was not a mental disease. "I imagine," he said, "that everyone has more or less splitting in personality. It is a condition in which certain experiences are pushed out of consciousness, but have an effect upon the way in which the person behaves." "A split personality develops most easily into psychosis during adolescence (14 to 21 years), and with persons of a high grade of intelligence. When such cases become psychotic, they often commit acts of violence, without apparent motive, and without remorse." But he considered that this last statement had no bearing on the present case. Changes in the endocrine glands, without alteration in the brain, probably affect conduct. Of course such changes in the glands were themselves "conduct."

Dr. William A. Krohn had seen no evidence of mental disease in either of the accused. Their memory, judgment and attention were good.

Dr. Rollin Turner Woodyatt was called as an expert on the endocrine glands. He said that very little was known of the influence of these glands upon conduct. He did not consider that the basal metabolism in the accused was outside the normal limits of variation.

The prosecution laid great stress upon the ten thousand dollar ransom, suggesting that the attempt to obtain this money had been the real motive for the crime. We do not think there is much in this argument. Both the lads had plenty of money in their banking accounts, and they were lavishly supplied with funds for luxuries. We do not think that the mere desire to handle the money has been shown to have any weight. It is true that to get the money in this exciting way was part of the "thrill," a thrill which would have been lacking had the money been obtained from their fathers by asking in the ordinary manner. This desire for a thrill was of sex origin. So ingenious a pair could have arranged a kidnapping, and obtained a ransom, without committing murder, had the ransom been the sole, or even the chief object.

It was urged by the prosecution that the accused might have lied

to the alienists for the defence. The fact that they had so lied was freely admitted, as regards certain parts of their story, by these alienists. Equally might they have lied to the State examiners. Dr. Healy said that, in his judgment, the lads were, in the main, speaking the truth, because they really wanted to understand themselves, and why they had committed the crime. Dr. Hulbert considered that Loeb's story showed too much wealth of detail for a malingerer. We may admit that the "master criminal fantasy" might have been invented as an afterthought. But that of the "slave and king" bears all the marks of genuineness. And it may well be asked which side was the more likely to have arrived at accurate conclusions—the alienists who conducted the intensive examination, the results of which we have summarized above, or those for the State who made what would appear to have been a comparatively superficial examination. Two of the latter alienists had conducted their examination of Leopold in a room in which fifteen other persons had been present. And another admitted that he had arrived at his conclusions without having asked either of the accused a single question.

Something was made by the prosecution of the fact that both the accused were sons of wealthy parents. It was suggested that the defence were thus enabled to employ eminent alienists, and that had the lads been poor they would have been hanged without demur or delay. But this argument can be used in the opposite direction. That they were the sons of wealthy men increased the popular fury against the accused. It is quite possible that had so strange a crime been committed by two poor men, the prosecution would have accepted the facts as indicating some mental abnormality, and would have agreed to a life sentence. In this connection the fact that an election was pending in America, and that certain legal offices are elective, must not be overlooked. "Different law for rich and poor" may be no bad slogan.

The judge took some days to consider his sentence. He pronounced it on September 10. He sentenced each of the prisoners to imprisonment for life, adding the technical sentence of 99 years for the kidnapping charge. He stated that, in rejecting the death penalty, he was chiefly influenced by the lads' youth. But he added that he was obliged to dwell upon the mass of data produced as to the physical, mental and moral condition of the two. They had been shown to be abnormal in essential respects. Had they been normal they would not, he said, have committed the crime. He recognized that the careful study and analysis which had been made was of extreme interest, and would be a valuable contribution to criminology. Similar analyses made of other accused persons

would reveal similar or different abnormalities. The value of such tests lay in their applicability to criminals in general. These matters were deserving of legislative consideration. In this last remark he may have been hinting at the desirability of establishing an institution for the study of these difficult cases. It is probable that most of our readers will agree as to this.

We have, in the main, contented ourselves with presenting a summary of this remarkable case. It would not be fitting for us to comment at any length upon a case in which we were not personally concerned, and of which some of the reported details were faulty. We have mentioned the necessity for joint action by the perpetrators of an offence of this kind. Setting aside the abstract question as to whether the commission of a serious crime is, in itself, evidence of abnormal mentality, we feel that the two offenders in this case cannot be regarded as other than abnormal. It may be true that a psychopathic personality is only an exaggeration of the normal, and that we all have, to some extent, split personalities. But we feel that the psychopathic conditions in this case pass beyond the limits of normal variation, although it may not be possible to label them with text-book names.

Finally, we must not be taken as expressing any opinion upon the general question of capital punishment when we claim that, in the interests of science, it is fortunate that these two lads are not to be executed. There will be opportunities (which we may hope will not be lost) for further study of their cases, apart from the excitement and notoriety of the trial. Time will show if either develops a psychosis.

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Typhoid Carriers in Mental Hospitals. By P. K. McCOWAN, M.D.,
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THE following paper presents the results obtained from the investigation of enteric fever at Cane Hill Mental Hospital. For some time past there has been a persistent incidence of enteric fever on the female side of this institution. The cases have been sporadic, and as all circumstances pointed to the existence of "carriers" as the cause, it was deemed advisable to conduct an extensive bacteriological examination on all possible sources of infection.

For this purpose the case-records of all the female patients were examined, and a list compiled of all cases that had previously suffered with enteric fever or any illness suggesting enteric fever, or in the course of previous examinations had given a doubtful Widal reaction without clinical symptoms. All available evidence was made use of to make this list as complete as possible, and finally it was found to include 98 patients still resident in the mental hospital.

Specimens of the urine and fæces were sent by special messenger to the laboratory on four different occasions at periods of about a week.

At the laboratory they were immediately plated on MacConkey media, and all suspicious organisms investigated by sugar reactions and agglutination tests with the Oxford standard agglutinating sera, and in the large amount of work necessitated by this investigation we would acknowledge the valuable assistance rendered by Mr. F. Partner.

Repeated examination of these cases revealed eight instances in which *B. typhosus* was found in the excretions. These patients were placed together in one ward, and it was hoped that with suitable precautions the danger to the other patients in the ward would be reduced to a minimum, but six fresh cases of enteric fever occurred in this ward within six months. As a further precaution, all the patients were inoculated with T.A.B. vaccine, and only one further case has arisen.

Since the segregation of the "carriers" only one case of enteric fever has occurred outside this ward. Examination of the fæces and urine of all the patients in this other ward led to the detection of another faecal "carrier." Thus in the course of this investigation nine "carriers" have been detected, three whose attack of typhoid was of comparatively recent date, and the remaining six of periods up to nineteen years. Their particulars are as follows:

(1) F. D—, admitted May 7, 1918. Mental condition: Dementia præcox. August 30, 1920: Attack of typhoid of three weeks' type. Agglutination to *B. typhosus* positive. Para A and B negative. Between September 11 and December 28, 1922, urine and faeces examined on nine occasions. Urine negative, but *B. typhosus* isolated once from faeces.

(2) S. H—, admitted January 14, 1897. Mental condition: Manic-depressive insanity. March 29, 1923: Attack of typhoid of three weeks' type. Agglutination to *B. typhosus* positive. Between April 11 and June 18, 1923, urine and faeces examined on six occasions. *B. typhosus* isolated once from the urine, and from the faeces on three occasions.

(3) E. B—, admitted December 7, 1908. Mental condition: Dementia præcox. October 9, 1922: Attack of typhoid of three weeks' type with pneumonia in convalescence. Agglutination to *B. typhosus* positive up to 3,000 Dreyer units. Para A and B negative. Between October 16, 1922, and March 5, 1923, urine and faeces examined on eight occasions. Urine negative, but *B. typhosus* isolated on last occasion from faeces.

(4) J. W. B—, admitted March 14, 1884. Mental condition: Dementia præcox. Typhoid fever of three weeks' type in 1904. February 24, 1917, clinical typhoid with negative Widal. Faeces negative, but urine examined four times between March 27 and September 11, 1922, showed the presence of *B. typhosus* on three occasions.

(5) E. L—, admitted March 15, 1892. Mental condition: Dementia præcox. March 2, 1917: Attack resembling enteric fever of three weeks' type, but with negative Widal. Between November 4, 1922, and February 24, 1923, urine and faeces examined on six occasions. Urine negative, but *B. typhosus* isolated three times from faeces.

(6) C. M—, admitted January 13, 1897. Mental condition: Dementia præcox. September 16, 1917: Note says, "She has run a temperature for ten days. No special symptoms. September 19, 1917: She is getting up and has quite recovered." Owing to the occurrence of a case of typhoid in the ward, the urine and faeces of all the patients were investigated. All were negative with the exception of the above case, from whose faeces *B. typhosus* was isolated.

(7) S. T—, admitted March 24, 1890. Mental condition: Dementia præcox. October 28, 1918: Typhoid fever of three weeks' type. Agglutination positive. Urine and faeces examined thrice from March 25, 1922, to January 8, 1923. Urine negative, but *B. typhosus* isolated from faeces on last occasion.

(8) M. A. D—, admitted January 30, 1919. Mental condition: Dementia præcox; wet and dirty. May 27, 1919: Typhoid fever of three weeks' type. Agglutination positive. Urine and faeces examined four times between October 3, 1922, and February 19, 1923. Urine negative, but *B. typhosus* isolated from faeces on one occasion.

(9) E. T—, admitted September 14, 1916. Mental condition: Secondary dementia. August 4, 1920: Typhoid fever of three weeks' type while suffering from pulmonary T.B. Urine and faeces examined four times between June 29, 1922, and February 12, 1923. Urine negative, but *B. typhosus* isolated on two occasions from faeces.

It will be observed that the above cases include one urine carrier and eight faecal carriers. The urinary case is noted to have had an attack of typhoid nineteen years ago, and the other cases have probably been intermittent "carriers" for periods up to seven years. In one case there was no definite previous history of typhoid, but a suspicious note renders it probable that the case has been a carrier for over six years.

This investigation agrees with others of a similar nature in suggesting a higher incidence of "chronic carriers" following typhoid infection in mental hospitals than the 3 per cent. found in similar investigations elsewhere. It has been suggested that a psychosis

is a predisposing factor to a carrying state, but there is no evidence to support this view. A much more probable explanation of the large number of "carriers" found is the exceptional facilities for thoroughly carrying out bacteriological investigations on a large scale in the institutions concerned, with a corresponding increase in the probability of detecting the presence of "carriers." Also, as Eccard suggests, an insane typhoid convalescent of filthy habits is probably always reinfecting himself, and so develops into the chronic type.

As regards the pathogenesis of the typhoid-carrying state, though none of the "carriers" in the present series have symptoms, quite a large number of "carriers" suffer from cholelithiasis, while in others, though symptoms may have been absent, gall-stones have been almost invariably found at autopsy. The condition is probably due to focal deposits of *B. typhosus* in the gall-bladder in intestinal "carriers," and in the pelvis or tubules of the kidney in urinary "carriers." These deposits are doubtless determined by pre-existing lesions, which would account for the striking preponderance of female over male "carriers," in accordance with the relative gall-stone incidence in the two sexes.⁽¹⁾ In the majority of autopsies on intestinal "carriers" the bacillus has also been recovered from the liver, intestinal walls and spleen.

As regards the physical disabilities of the "carrier" state, it may be said in general that the "carrier" who has no definite gall-bladder symptoms is little, if at all, inconvenienced in bodily health. Certain "carriers" of intermittent type, however, have been observed to suffer from periodic disturbances of their general health.

Various methods of treatment have been tried in the endeavour to clear up the infection in this condition. Cholecystotomy and cholecystectomy have been tried, but the results have been far from encouraging. This is only to be expected when it is remembered that in long-standing cases the bacilli are lodged, not only in the gall-bladder, but also in the biliary tracts and duodenal recesses. Vaccines, both stock and autogenous, have been unsuccessful, and X-ray treatment in the region of the gall-bladder has proved equally disappointing. The drug treatment of both urinary and intestinal "carriers" has been entirely ineffective, a temporary improvement being the very best that has been obtained. It must indeed be admitted, on considering the pathology of the condition, that the problem of effecting a cure in these "carriers" is an extremely difficult one. In the case of "carriers" who are in an early stage of this condition, there may be some hope of effecting a permanent cure by one or more of the above methods, but in

long-standing chronic cases the chances of success would seem to be extremely remote.

Certain measures can be carried out for the diminution of spread of infection by "carriers." The first step is the adoption of some form of routine bacteriological examination during convalescence, and as the cases examined in this investigation show, allowance must here be made for intermittency. Undoubtedly much harm can be prevented by the early recognition of "carriers," and the longer the duration of bacteriological supervision the less is the risk of overlooking the intermittent "carrier." Monthly examination of the excreta of all convalescents for a period of twelve months would probably suffice, and in mental hospitals with their own laboratories this can very easily be carried out. Similarly it would be easy to examine the excreta of every new admission. It is a very good rule, and one that is observed in many institutions, that no patient who has suffered from typhoid fever should be allowed to have anything to do with the food of other patients. Infection occurs most frequently by the hands, which are readily contaminated with typhoid bacilli during defæcation and urination. It has been found that washing the hands with soap and water alone may fail to remove *B. typhosus* present, whereas this with thorough drying after removal of soap with running water is very efficient. The chief protective measure in mental hospitals is isolation. To be successful this means an isolation block with special nurses, which may well be impracticable in many institutions. Owing to administrative difficulties, it has certainly been impossible so far at Cane Hill Mental Hospital. Here all that has been practicable has been the collection of all the "carriers" in one ward, but the attempted isolation under these circumstances has not proved very successful.

The present investigation, together with a similar one at Long Grove Mental Hospital indicates that the condition of mental hospitals as regards typhoid fever is more serious than is generally accepted, and suggests the possibility of a number of "carriers" being present in similar institutions.⁽²⁾ In the London County Council mental hospitals it might be easier to deal with these patients as a whole than at each hospital separately, though in other respects there would be many difficulties.

Summary.—The investigation of 98 cases whose history indicated any suspicion of previous enteric fever has led to the discovery of one urinary and seven fæcal "carriers," also one fæcal "carrier" was discovered amongst the contacts of a case of enteric fever occurring in a ward, after segregation of the above "carriers." One "carrier" had no definite previous history of enteric fever, but a suspicious note suggests the possibility that the case has been

a "carrier" for six years. The other cases have probably been "carriers" for periods up to nineteen years.

The importance of periodic and persistent bacteriological examinations of the excreta of suspected cases is shown by the fact that the "carriers" were mainly of the intermittent type, and typhoid bacilli were only isolated after repeated examinations. The recent equipment of laboratories in the London County Mental Hospitals will help in this respect, not only in giving facilities for more work to be carried out, but also enabling examinations to be made on absolutely fresh material.

The treatment of these cases presents a very difficult problem, the only prophylactic measures possible being general inoculation and segregation of "carrier" cases. The latter measure confers some hardships on the patient if varying mental types have to be warded together; it also presents administrative difficulties.

In conclusion we would express our thanks to Dr. F. Golla, Director of the Pathological Laboratory at the Maudsley Hospital, and Lt.-Col. S. Elgee, Medical Superintendent of Cane Hill Mental Hospital, for their interest and facilities given to carry out this work.

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(¹) During the years 1907 to 1913 at Claybury Mental Hospital, 539 male and 587 female autopsies were made under the direction of Sir Frederick W. Mott. The incidence of gall-stones was 52, or 9·6 *per cent.*, males, and 95, or 16·2 *per cent.*, females.—(²) Similar investigations at Horton Mental Hospital show there to be several carriers, in addition to one already known and isolated. Cases of typhoid have been comparatively few, but have recently tended to increase. No epidemics have occurred.—Eds.

The Unconscious: A Suggestion.(¹) By WILLIAM CALWELL, M.D., Physician, Royal Victoria Hospital, Belfast.

THE word "unconscious" is used in Freud's sense; the word "suggestion" is used more in the general sense of the presentation of an idea to the mind than perhaps in the more technical sense of McDougall.

(¹) A paper presented at the Annual Meeting held at Belfast, July 2, 1924.

The "conscious" is what one is cognizant of at the moment; the "pre-conscious" is what one is not actually cognizant of at the moment, but what one can recall to consciousness at will. The "unconscious" he cannot recall at will or summon to his consciousness; but it can be recalled by special methods, as by psycho-analysis and by hypnotism. It is a dynamic force; it is actively working and has to be reckoned with; it is mostly of the childhood type of mind and has been repressed by "education." The child type of mind is simple, yearns for immediate gratification, is selfish and without an æsthetic standard. On the other hand the average, adult, educated type of mind is complex, controls immediate gratification, is less selfish, has wider interests and has an æsthetic standard. Freud says that the former type persists in the unconscious, even to adult life, but is modified by education, much of which consists of a series of "don'ts," on the primitive mind.

Let us see whether we can work out a "cerebral physiology" aspect of the above crude psychology.

The brain of the common ancestor of man and higher ape contained convolutions suitable for its work in the world. He was not self-conscious, or but feebly so; he could not speak, using the word in the ordinary sense, nor reflect by speech; he could not say, "I think, therefore I exist"; but he could judge of distances to a nicety, he could fight an enemy, make love, search for food. He was a cunning animal, and reasoned in some way, probably by sensations, and had a tenacious memory; but his mind was simple, yearned for immediate gratification, had no æsthetic standard.

In the descent of man new convolutions were added, one might say cell by cell, till the human being could speak, could say, "I think, therefore I exist," and so was self-conscious; his mind became complex with memory and reflection and judgments, ideas and imaginations, and he could inhibit his primitive neural arcs by his neo-neural arcs, as the neural arcs of his primitive convolutions had inhibited the neural arcs of his spinal cord. Everything points to the truth of the supposition that these later mental powers have their basis in the newer or more lately developed association centres; it is an inference in inductive logic; without these centres you have not the higher mental powers; with them you have these higher mental powers; they are indissolubly associated. The older convolutions retain their structure—that is, their anatomy, more or less modified; they retain their physiological functions, modified more or less; witness the fact that the experimental physiologist draws conclusions from the brain of apes as to the functioning of the brain of man, and these conclusions are confirmed by the results of disease. With their shape and their physiological functioning it is

a fair inference to suppose that their systems of internuncial fibres are much the same, modified more or less ; and from these similarities to deduce the inference that those functions which are not available for physiological experiment, the psychology, the animal bias, the animal trend, or nature, the absence of self-consciousness, the simplicity, the selfishness, the want of moral and æsthetic standard, are all, more or less modified, present in, or associated with, these primitive convolutions. Thus it will seem that in man we have the primitive brain and the primitive mind, both modified more or less ; and also the later brain with its new association centres and its new internuncial fibres, of infinite intricacy and complexity, its cells and internuncial fibres interlacing among themselves and with those of the primitive brain.

A young child's mind is remarkably animal—its simpleness, its utter selfishness, its unrestrained manifestation of its feelings, its likes and dislikes, its senseless cruelty, its desire for immediate gratification. Year after year as the child grows these animal traits are steadily inhibited, and curious and bizarre anticipations on the one hand and delays on the other of the adult mind are of common experience. Education fosters the training of the primitive brain or mind into good habits, and also the development of the complicated functions of the associated centres with their powerful inhibitive control of the early convolutions. But these early convolutions must have a power of influencing the later developments to which they are so closely joined, of stimulating the neural arcs which have been added to them as a house is built brick by brick.

As the primitive brain is not capable of self-consciousness I would make the suggestion that, as far as one can differentiate, it is the physical basis of the "unconscious." To repeat, we have thus an animal mind, not self-conscious, with the physical basis in the primitive brain, giving rise to the phenomenon of the "unconscious"; but inextricably connected, mixed and associated with, both controlled by and at the same time stimulating, the adult human mind with its physical basis in the later developed association centres.

This comparatively simple physical view gives a clearer and more intelligent explanation of the innumerable references in poetry, general literature and in psychology to our double nature, to our instincts and our mental conflicts ; one quotation will suffice—Ovid's "*Video meliora proboque, Deteriora sequor.*" We are constantly modifying our animal nature and limiting our instincts, but one day a storm of passion sweeps down upon us, and we behave like a wild animal. No medical man in practice a few years but has been consulted in the case of some young lad or girl who has been

swept off his or her feet by uncontrolled animal passion. Before and after, reason holds sway, and they bitterly and clearly recognize the nature of their transgression: the later developed association centres and mind go down before the storm; the older are but discharging their normal function.

In psycho-analysis, again, the brain is kept quiet as far as any brain can lie quiet; this gives an opportunity for any dominant feeling or thought in the primitive brain to come to the top, and stimulate the higher centres; what was before an ill-defined, vague feeling now becomes a conscious thought. Probably in the term "unconscious" are included and confused two different and separate processes—one the general functioning of the primitive brain, the other those repressed thoughts and emotions associated with the later brain, which are inconsistent with the general trend of our education and morals. Many of the latter may be the result of stimuli from the primitive brain; and it should also be remembered that many stimuli from the primitive brain may be quite consistent with our education and morals—witness hunting.

Our primitive brain is analogous to the simian hand; but we have added many more convolutions to the simian brain to form our brain than we have added muscles to the simian hand to form our hand, and perhaps we have lost some, as we have lost the grasping muscles and shape of the foot.

Diet according to Symbiosis. By H. REINHEIMER.

ACCORDING to the late Sir William Bayliss, a leading physiologist, the vitamins, which the plant alone knows how to manufacture, are a kind of chemical messengers (hormones). "They are obtained from the plant, and are particularly abundant in fresh green vegetables and fruit." . . . "Their precise mode of action is still unknown, but in their absence normal growth and function is impossible and certain diseases make their appearance." Hence the normal growth of the animals depends upon stimulations and influences directly derived from the plant kingdom. The evolution of the animal is in large part directed by the plant, which is also saying that it is cosmically directed, in virtue of those terrestrial and solar influences which the plant purveys. But it is also saying, in a most important sense, that all organic evolution is directed by the amount of mutuality existing between the kingdoms and what this involves in bio-sociality. If the vitamins are, in Sir William's words, "obviously a kind of chemical messengers," then we must consider them as the hormones of symbiosis, as

"messengers" of health—the diametric opposites of the alkaloids, the vegetable poisons which are of appalling efficacy in the physiological economy of the animal. By symbiosis I mean not parasitism, not commensalism, but definite, almost deliberate, mutual adaptation for the purpose of mutual service, on the part of living things, nearly always of different orders of creation, broadly, that is, between the plant and the animal ("Norm-symbiosis").

Dr. R. McCarrison is another physiologist who declares that the vitamins resemble the hormones, and he shows that vitamins influence markedly the production of hormones. He furthermore says that the similarity of action may be demonstrated by many facts. He also states that vitamins are one link in a chain of essential substances requisite for the harmonious regularization of the chemical processes of healthy cellular action. If this link be broken the harmony ceases or becomes discord, as it may cease or become discord if any other link be broken. "Vitamins provide cells of the body with power—one might almost say, the will—to work." Evidently there is a momentum for honest work in the strenuous plant, and this momentum communicates itself to the symbiotic animal. Many instances of this kind could be adduced. What is more, as I have shown elsewhere, symbiotic systems push each other on unceasingly, until we get a kind of compound urge of progressive evolution, emanating from symbiosis, which urge I have denoted "symbiogenesis."

It is evident that Nature knows no difference between physiological and biological inter-relations, that she maintains biological symbiosis by the same means as are employed to maintain internal symbiosis. On the "symbiotic" interpretation of hormones, vitamins and alkaloids, we get a perfectly rational panoramic explanation of the whole field of related phenomena.

A word of warning is required, says Sir William Bayliss, against those advertisements of preparations which speak of vitamins as though they were a species of drugs. They are normal constituents of certain foods, and careful tests have shown that as much is to be obtained from an egg or an orange as from some ten shillings-worth of the best commercial product. All of which shows that we shall fare best on a simple natural dietary and by relying upon natural remedies. Sir William tells us about the good effects of sunlight in curing certain diseased conditions, such as tubercle and rickets. Here, too, it seems that some chemical messengers have been produced in the skin by photo-chemical reaction and have been carried by the blood all over the body. But the production of such "messengers" depends upon the quality of pigments present in the system, and particularly in the skin; and these pigments,

in their turn, go back to plant pigments. They are primarily introduced by the ingestion of plant-food. There is thus good reason to think that much depends upon the biological adequacy of the food—the material from which the body is built up.

When, acting as carnivores, we kill animals in order to eat their voluntary muscles, which we call meat, we travel in the direction of what I have termed a "tape-worm adaptation," *i.e.* one of wrongful substitution of proteins for other substances more important to high specialization. Muscle is not normally or legitimately built up by eating other muscles, but by eating vegetable carbohydrates and vegetable proteins, which have, of course, to be supplemented by legitimate exertions towards the obtaining of those rewards. Man is made for work. If we fail to build up our body on biologically legitimate principles, we cannot wonder at a wrongful substitution of one substance for another, nor at a multiplicity of other similar evils. It has been found that vegetable protein, derived from beans, peas, rice, wheat, nuts and cereals generally, whilst it is digested as easily as animal protein, resists *colon bacillus* changes much better than animal proteins. The *Bacillus coli*, says Dr. Leonard Williams, who ascribes a great number of maladies to intestinal stasis (*Brit. Med. Journ.*, June 16, 1923), is, like ourselves, changing its character according to its diet. "When stuffed with devitalized flesh-foods it becomes quarrelsome and poisons its host, but when fed on live carbohydrates, which are enabled by a rational dietary to reach it in an insoluble envelope of cellulose, it becomes lamb-like and assists its host in disposing of enemies." In other words, we have it in our power, by the choice we make of food, to turn associated organisms—our animate environment—into symbiotic helpers, or, in the alternative, into pathogenic, *i.e.*, parasitic enemies. The temptations which we put in the way of our own cells by wrong diet are sufficient to account also for the parasitic character of the cancer-cell. The colon bacillus may be viewed as a part of us, despite its autonomy. And if this bacillus can thus be spoilt in character by the temptations which we set before it, we may conclude that the same may happen to other more essential parts of us, namely, to our cells and tissues. They, too, are not without some autonomy, however limited, and they, too, can be spoilt by the temptations offered in the shape of biologically unsuitable food. As I have stated in an article on "Symbiosis and Disease" (*Psyche*, April, 1923), in answer to the question what is the reason for the disloyal behaviour of the cancer-cell, which acts as a parasite on the rest of the body, there are (a) evil communications, (b) temptations, (c) somewhat paradoxically, starvation. The evil communications are provided by the organism

itself, in obtaining food feloniously, *i.e.*, by short cuts, causing it to become more or less debauched and to transmit like influences to its members. The temptation is provided by the appearance in the tissues of superabundant nutrition, which, so far from prompting to gregariousness and high forms of association and integration, lures the tissues into the path of biological anarchy; and the starvation is due to the fact that, surfeit notwithstanding, vital food constituents fail to be elaborated. Hence the craving for such ingredients, which can be appeased only by unsymbiotically invading adjoining normal tissue.

Here I might well interpose Dr. McCarrison's experience of "physiological" cannibalism amongst animals deprived of vitaminous food, since it tallies with my observations. Says he: "Fowls will consume their own feathers or those of their neighbours, although supplied with abundance of deficient foods. The habit is one of the most outstanding symptoms of avitaminosis in these birds. I have known them kill one of their number and eat portions of its body, impelled to cannibalism by the instinct which prompts them to make good the food deficiency. Deficiently-fed rats may behave in the same way."

Instead of a flesh diet, Dr. Leonard Williams recommends an intensive vitamin dietary—in other words, one obtained in Nature by symbiotic cross-feeding.

As regards, more especially, diabetes, it presents a case of failure of due oxidation and use of glucose. The general metabolism has become perverted by wrongful substitution in diet. It is a concomitant of this particular form of perversion that the famous "islands of Langerhans," tiny glands in the pancreas, fail to do their duty. They no longer secrete their customary ferment, which normally breaks down the sugar of the blood. They have lost their power of normal functioning in proportion as the organism proceeds with abnormal feeding—abnormal adaptation. To correct this "intolerance" of the body to carbohydrates, "insulin," an extract made of animal glands, is now to be injected into the blood-stream.

Now one of the workers in that field, Dr. J. B. Collip, has informed *Nature* (April 28, 1923) that he has found that the effect of plant extracts on blood-sugar is identical with that produced by "insulin." This discovery, in my opinion, goes a long way to show that the beneficial effects of the internal secretions are essentially due to substances yielded by symbiotic plants—a matter I have stressed in a chapter on "The Bio-Economics of Internal Secretions" in my book on *Symbiosis: A Socio-Physiological Study of Evolution*.

Dr. Collip tells us that his former prediction is now coming true,

namely, that wherever glycogen occurs in Nature, an insulin-like substance is also being found. On putting the idea to the test he obtained positive results with clam tissue and with yeast. Hence he thought that if yeasts contain an insulin-like hormone, other plants may also contain it—a reasoning which is well on the way of my own, namely, that everything that is of fundamental value as chemical power goes back to the plant. Dr. Collip applied to the higher plants, and he found extracts from tissues of a variety of such had a remarkable effect upon the blood-sugar of rabbits. The effects of certain plant extracts upon the blood-sugar of depancreated dogs were also studied. Extracts made from onion tops, onion roots, barley tops and sprouted grain, green wheat leaves, bean tops and lettuce—a motley list of representative mammalian food-plants—were found to produce marked hyperglycæmia in normal rabbits. The day following the administration of an extract of green onion tops to a depancreated dog with a blood-sugar of 0.190 *per cent.*, a blood-sugar of 0.090 *per cent.* was observed. Hence Dr. Collip claims to have discovered a new “plant hormone,” to which he gives the name “glucokinin,” *i.e.*, one which assists the digestion of sugar. May it not be that the prevention of diabetes lies in the adaptation to a well-balanced vegetarian dietary, one which, on biological grounds, we may expect to supply not only the right raw material, but also the right hormones to deal with it?

There are two American workers, W. Thallimer and Margaret C. Perry, who claim some credit in discovering the effect of plant extract on blood-sugar, and in *Nature*, August 4, 1923, they give us the benefit of their experience. Their study in connection with insulin led them to the conception that carbohydrate metabolism is performed by an oxidizing ferment mechanism. This theoretical conception induced them to test vegetable material known to contain oxidases and peroxidases for oxidizing substances having an insulin-like action. They found that the juice of potatoes injected intravenously is apt to reduce the blood-sugar. They believe that their and Collip's theory dovetail. Like Collip, they express the view that a storehouse of food (glycogen, starch, etc.) and a ferment for the metabolism of this food are necessary wherever growth occurs in vegetables.

Parenthetically I would remark that Prof. N. Bernard, in studying symbiosis between orchids and fungi, found glycogen to be present upon the peculiar clusters formed by the threads of the fungi. These clusters occur when the fungi live in symbiosis with orchids; but they are absent when the fungi live free, *i.e.*, parasitically, in Nature. The clusters seem to facilitate mutual

exchange of substances, and there can be no doubt that symbiosis is both a means of, and a powerful inducement to, the storing of useful material, and to the elaboration of appropriate ferments by the highly specialized partners. Thallimer and Perry declare that their study has led them to the tentative suggestion that insulin, which is apparently not itself an oxidase or peroxidase, only indirectly stimulates or activates oxidizing ferments in the tissue-cells to act upon glucose, whereas *vegetable extracts contain active oxidizing ferments, which act directly* when injected into the animal (*italics mine*).

Read this in conjunction with the view expressed in certain medical quarters that it may be better in the future to administer insulin by the mouth, and it will not appear a far step to the proposition that by means of symbiotic cross-feeding we shall be able to prevent disease instead of having to cure it.

I am of the same opinion as Sir Arbuthnot Lane with regard to the prevalence of cancer. He stated in a letter to the *Times*: "Nature has provided us with a most definite evidence as to the cause of cancer, or, rather, as to the circumstances in which cancer does or does not occur. In native races in their normal surroundings cancer and the intestinal conditions which precede it are absolutely unknown. In civilization cancer and the associated intestinal conditions appear for the first time and are most prevalent. We believe that they are increasing with great rapidity, exacting a steadily increasing toll of human life. If the native is removed from his normal surroundings and habits and becomes a member of a civilized community, he is affected by cancer and the associated intestinal conditions with the same frequency as the white man with whom he lives. Indeed, the prevalence of cancer in the native varies directly with the degree of civilization in which he is thrown."

In an article on "The Relation of Faulty Nutrition to the Development of the Epithelioma contagiosum of Fowls," *British Medical Journal*, August 4, 1923, Dr. McCarrison shows that a certain state of faulty nutrition and of deranged metabolism favours the entry into the body and the activity of an invisible virus possessing the specific quality of inducing epithelial new-growths. It is conceivable, according to him, that substances possessing growth-inducing qualities may be evolved from the tissue-cells themselves under conditions of slow disturbance of nutrition, in a manner comparable to the evolution of such during the process of autolysis of cells. My point is that the possibilities of this kind are the greater the more the organism is addicted to the habit of "in-feeding," *i.e.*, of building up its body on biologically inadequate material.

In his book on *Studies in Deficiency Diseases*, McCarrison, who is impressed with the vast importance of the food factor in the causation of disease, tells us that deficient foods are in practice usually ill-balanced foods, and that the effects of avitaminosis are bound up with mal-adjustments both in quality and quantity of other essential requisites of the food. To him the ideal diet is a "well-balanced food of good biological value and rich in vitamins of every class." The vitamins, according to him, are not foods in the sense of tissue-builders or producers of energy. Their function in the animal economy is still incompletely understood. Certain it is that they are obtained from the vegetable kingdom. Plants alone appear to possess the power of synthesizing them. Man and animal derive them directly or indirectly from plants. Persons receiving too few vitamins are living in a state of potential morbidity, which may be converted into one of actual disease by a variety of factors that further exhaust the metabolism. McCarrison has seen that when the food is deficient in vitamin and excessively rich in energy-bearing elements, profound abnormalities take place. Biologically speaking, this is what I mean by the ill-effects of a divorce from symbiosis: there is a loss of proportion, of orientation; the animal is no longer under the only control that is of avail in progressive evolution, namely, the control of norm-symbiosis.

Fruits, according to McCarrison, as sources of vitamins, rank high, whilst their content of organic acids and indigestible vegetable constituents—gums, waxes, and cellulose-like carbohydrates—gives to them an added value in promoting the excretory processes of the kidneys, and in maintaining the functional perfection of the gastro-intestinal tract. We should add to this the fact, established by Richet and his school, that fruits and vegetables have never been known to give rise to "alimentary anaphylaxis"—the dietary equivalent of serum disease, whilst flesh foods often produce the same distressing symptoms upon body and mind as are known frequently to result from a direct introduction of protein poison into the blood. No wonder McCarrison declares: "There are no more important ingredients of a properly constituted food than raw fruits and vegetables, since they contain vitamins of every class, recognized or unrecognized." . . . "I have written of three vitamins, because three are known, not because it has been proved that there are only three. But whether there be only three or legion, they will be found to exist—and this is the important point—in the foods made in Nature's laboratory, in quantities and in combinations adequate for the due digestion and assimilation of the natural food-stuffs with which they are associated in Nature."

Although the contrary is foolishly believed by the masses, in

reality it is flesh foods which impose the greatest burden on the metabolic resources of the body, and which depress the functional capacity of the endocrine regulators of the metabolism. McCarrison shows that excess of fats in the food causes serious trouble. It keeps the protein and carbohydrates so low as to produce anæmia and other disorders of malnutrition. Add to this the fact that many cancers are known to originate from fatty tissue, and the further one that surgeons operating for cancer are always particularly intent upon removing every scrap of fat to be found near the source of trouble, and it is clear that to be encumbered, as we usually are as a result of a flesh diet, is one of the gravest risks we run.

McCarrison has perceived what was long known to me as an outstanding fact—that the early departures from health, “the early evidences of disease,” in his own words, are due to transgressions against nutritional law.

We should remodel our biology so as to adjust it thoroughly to the fundamental fact of our dependence upon the plant, in accordance with “norm-symbiosis”—the partnership between plant and animal on the grand scale of Nature.

Pathogenic organisms, says McCarrison, when present in the body during the period of its subjection to faulty food, contribute their share to the general morbid result; but the beginning is always made, the susceptibility always caused, by transgression against nutritional law. “Under conditions of food deficiency, the presence in the bowel of pathogenic micro-organisms may determine the character of the morbid states initiated by the food deficiency, and even impart to them endemic or epidemic character. In these circumstances the ætiological significance of the underlying food defects, which has permitted the unhampered action of the pathogenic agent, may be obscured.” In other words, nothing but mischief can result if our food is inadequate. But adequate food is that which is proportioned both in a physiological and a biological sense. Food that is biologically inadequate for us may be food adequate for scavengers.

The dietary habits of our people, according to McCarrison, form a sad tale to tell: “Fresh fruit is a comparative rarity, even on the tables of the rich. Green vegetables are scanty, and such as there are, are often cooked to the point of almost complete extraction of their vitamin-content and salts. White bread has largely replaced wholemeal bread.” . . . “Meat is at best but poor in vitamins, and its value in these essentials is not enhanced by freezing and thawing. Sugar is consumed in quantities unheard of a century ago, and sugar is devoid of vitamins which the cane-juice originally contained. The use of stale foods, involving the

introduction of factors incidental to putrefaction, is the rule, that of fresh foods the exception." In India he has found that the European patient "cannot digest vegetables or fruit," and never touches them. He says, "Hindhede concludes that the principal cause of death lies in food and drink," and adds, "Few will be disposed to doubt the justice of this contention in the face of an experiment so unequivocal" (as that made in Denmark during the war, when the cereals and potatoes were taken from the distillers so that they could not make brandy, and given to the people, as a result of which the death-rate dropped as much as 34 *per cent.*). He says further: "My own experience provides an example of a race, unsurpassed in perfection of physique and in freedom from disease in general, whose sole food consists to this day of grains, vegetables and fruits, with a certain amount of milk and butter, and goats' meat only on feast days (the people of the State of Hunza, in the extreme northernmost point of India). They have in addition to grains—wheat, barley and maize—an abundant crop of apricots. Amongst these people the span of life is extraordinarily long. Their case shows that the enforced restriction to the unsophisticated food-stuffs of Nature is compatible with long life, continued vigour, and perfect physique." McCarrison concludes that with increasing knowledge of nutritional problems it has become apparent that our dietetic habits need remodelling, and that education as to what to eat and why to eat it is urgently necessary. Ever since 1899 I have published in the same sense.

There has been other evidence recently showing that the poisoning effects of excessive protein diet can be mitigated by the substitution of appropriate vegetable food in the diet. Dr. Gladys Hartwell has shown that by feeding mother rats with tomatoes, carrot juices and potatoes, she can prevent the evil effects which an excessive protein diet usually has upon offspring. It was thus demonstrated further, as I have pointed out elsewhere, that a diet which apparently is a boon to the individual may in reality be a curse to the species—in other words, that it is in the long run the biological adequacy of the food which counts.

Prof. V. H. Mottram has made the following remarks in connection with Dr. Hartwell's experiments: "The amount of vitamin B necessary for ordinary growth, and for reproduction, is by no means enough when the mothers are on a dietary rich in protein, and are nursing young. If this is true for human beings, the nursing mother who is taking a 'nourishing' diet, rich in protein, should take a large amount of vitamin B or rather vitamin B-containing foods as well. Nothing is more noticeable nowadays than that the rich and middle classes cannot nurse their own children, whereas

working classes often succeed admirably in that function on a much poorer diet. Can it be that the former class take too much protein and too little vegetables and fruits, which supply vitamin B in proportion? "

So Dr. Monckton Copeman has found that by excluding food-stuffs of animal origin, or at any rate those containing animal fat, he was able to formulate a dietary beneficial to patients suffering from cancer.

He does not object to a little fat of vegetable origin, and he supplied the fat solubles from such articles as lettuce and watercress. All of which testifies to the superior value of symbiotic cross-feeding—the best and most comprehensive way of summing up the whole matter, for we know as yet far too little of the vitamins to express the benefit of this or that food in terms of these. All we do know with certainty is that the plants manufacture the vitamins. But even the plants must, in accordance with socio-physiological law, cease to produce beneficial substances when subjected to habitual predacity by animals.

The evidence regarding the superiority of symbiotic cross-feeding is, indeed, on due collation, quite overwhelming.

The animal food consumed by man represents, as a writer pointed out in *Nature*, December, 1923, vegetable food converted by stock into "meat." "It is desirable to know," says that writer, "the extent of the waste involved in this process of conversion." We have as yet far too little realized that Nature sets her face against waste of this kind, and that the results of such transgressions against economic and biological laws must inevitably be disease and degeneration.

The *British Medical Journal* stated May 19, 1923, "Health depends on obedience to law, but this law must be intelligently understood, and should be voluntarily obeyed. Social conditions must be improved in the future, but the individual must also be educated to a social consciousness, and a happy blending of socialism and individualism offers a prospect of true evolution. Obedience to the moral law is the only way to a medical Utopia."

This is good sense. I would merely add that the "moral" will have to include the "bio-moral" law, for it is our duty to accommodate ourselves legitimately, not only to our fellow-men, but also to other creatures, the existence of which is indispensably interlinked with our own. In the long run this is a vital matter, although in our narrowness of outlook, in our love of irresponsibility, we have hitherto overlooked it. What is more, compliance with the law of biological reciprocity will react favourably upon the mutual relations between men and between nation and nation.

Clinical Notes and Cases.

A Note on the Use of Luminal in Epilepsy. By J. B. STRAFFORD LEWIS, M.A.Camb., M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Claybury Mental Hospital.

LUMINAL has been used in the treatment of insane epileptics in a number of patients at Claybury Mental Hospital during the last three years. A perusal of the results obtained shows that this drug would appear to have a definite value in diminishing the number of seizures, but that it hardly deserves the encomiums showered upon it in some quarters, *e.g.*, it does not reduce fits to the level of "rare occurrences," and in some cases the fit-incidence is increased during its administration.

Two main groups of cases are tabulated below. In Table I are given the results in cases where luminal was added to an already existing daily dose or doses of bromide in one form or another. In Table II luminal alone was given, and any previous medication stopped.

A word of explanation is perhaps necessary to show how some of the figures were obtained; thus, the "fit-incidence before and after

TABLE I.

Initials.	Sex.	Daily dose in gra.	Number of months under treatment.	Fit-incidence per month.			
				Before.	During.	After.	Result.
F. C— . .	F.	1½	8	16·4	14·5	12	Im.
G. B— . .	F.	1½	10	15·7	3·5	9·3	M.I.
F. W— . .	F.	1½	22	5	3·1	—	Im.
E. B— . .	F.	3	19	13·1	5·4	—	M.I.
E. B— . .	F.	3	17	5·2	2·4	10·1	M.I.
E. F— . .	F.	1½	23	8·5	7·5	—	Im.
E. T— . .	F.	3	29	3·8	1·8	—	M.I.
A. S— . .	F.	1½	12	21·2	4·6	4	M.I.
M. H— . .	F.	3	23	24·5	18·4	—	Im.
F. S— . .	F.	1½	22	10·3	13·8	—	W.
C. B— . .	F.	3	20	41·4	19·4	—	M.I.
C. H— . .	F.	1½	12	5·2	3·6	9·7	Im.
M. C— . .	F.	3	10	15	10·6	15·7	Im.
G. K— . .	F.	3	23	6·3	4·3	—	Im.
L. M— . .	F.	6	16	12·8	18·3	—	W.
E. C— . .	F.	1½	23	8·5	2·9	—	M.I.
E. A— . .	F.	1½	20	7·8	3·8	—	M.I.
M. R— . .	F.	1½	31	6	4·9	—	Im.
L. W— . .	F.	1½	10	8	9·4	9·3	W.
A. C— . .	F.	3	7	30·9	16	—	Im.
E. C— . .	F.	1½	14	35	28·2	18	Im.

treatment" represents an average taken over a period not less than six and in most cases as much as twelve months. In several cases these spaces are left blank, because either (1) the cases are still undergoing treatment, or (2) they were new admissions, and details of their previous history were not available.

Those cases whose fits were diminished by more than half were regarded as much improved. The results of this group may therefore be summarized as follows:

Much improved . . . 8, or 38 *per cent.*

Improved . . . 10, " 47 "

Worse . . . 3, " 14 "

An additional group of patients, 11 in number, have been similarly treated for periods too short to justify any very decided conclusion, but of these 8 show improvement, 1 remains *in statu quo*, 1 is worse, and 1 has died from *status epilepticus*.

TABLE II.

Initials.	Sex.	Daily dose in grs.	Number of months under treatment.	Fit-incidence per month.			
				Before.	During.	After.	Result.
A. B— . .	F.	1½	8	15	3·4	—	M.I.
M. H— . .	F.	1½	25	6·2	6·1	—	I.S.Q.
D. S— . .	M.	3	22	6·3	3·1	13	M.I.
W. P— . .	M.	1½	11	—	5·3	7·5	x.
J. C— . .	M.	½	20	8·3	8	—	I.S.Q.
H. Z— . .	M.	3	6	42·8	30·8	—	Im.
G. B— . .	M.	3	16	15·1	8·5	—	Im.
W. C— . .	M.	3	15	13·3	15·1	—	W.
L. W— . .	M.	3	13	27	2·6	—	M.I.
A. A— . .	M.	3	6	8	5·8	11·5	Im.
H. C— . .	M.	3	10	26·7	10·5	—	M.I.
H. B— . .	M.	3	18	26·2	7·7	11	M.I.
A. M— . .	M.	1½	8	—	2·4	5·9	x.
A. K— . .	M.	3	20	64·2	68·9	—	W.
A. H— . .	M.	1½	16	4·2	5·7	—	W.
T. P— . .	M.	3	15	3·7	1·2	—	M.I.
N. B— . .	M.	3	8	6·5	4·5	—	Im.
G. H— . .	M.	4½	8	9·4	8	—	Im.
C. Mc— . .	M.	3	9	21·5	18·2	21	Im.

These may be summarized as follows:

Much improved . . . 6, or 31 *per cent.*

Improved . . . 6, " 31 "

x = Better on luminal than on other medicine 2, " 10 "

In statu quo . . . 2, " 10 "

Worse . . . 3, " 16 "

Out of 5 additional patients similarly treated for shorter periods, 3 appear benefited, and the other 2 *in statu quo*.

SUMMARY AND OBSERVATIONS.

1. In 40 cases given luminal alone or in conjunction with bromides, 32 cases (or 80 *per cent.*) showed diminution in fit-incidence.

2. It would appear that as a rule luminal plus bromide is better than luminal alone.

3. No marked difference was found in the effect of the drug on major and minor seizures.

4. When luminal was stopped the fit-incidence fell in 3 cases, remained stationary in 1 case, and rose in 10 cases.

5. No poisonous symptoms or rashes at all were noted in this series.

6. No mental or physical amelioration was observed in any of the patients, other than was to be expected concomitantly with the fit reduction.

7. One case having luminal died with *status epilepticus*.

8. The principal moral to be drawn from these observations is that it is the patient who should be treated and not the disease. Epilepsy is not cured by luminal, but many epileptics are benefited by it.

I wish to express my thanks to Dr. G. F. Barham, the Medical Superintendent, for permission to publish the notes on these cases.

Mental Symptoms following Evacuation of Cerebral Blood-Cyst.⁽¹⁾ By W. CALWELL, M.D., Physician to Royal Victoria, Hospital, Belfast.

A. B—, æt. 42, governess, of a neurotic family. Had been in France and England with an American family, and consulted several doctors for some vague illness, sciatica, etc.

Seen first October 12, 1923, in consultation with Dr. Watson, Belfast. She was suffering from very severe headache and complained at times of being in agony, at times getting some relief. This headache came on very suddenly. She had then definite left hemianopia and left hemiparesis and left hemianæsthesia; there was no optic neuritis.

October 25, 1923: Admitted to the Royal Victoria Hospital in a semi-comatose condition. In the more conscious intervals she still had attacks of the agonizing pain already complained of; there was still the hemianopia, hemiparesis and hemianæsthesia. Some vomiting during the first few days. Some blurring of the discs was now seen, and retina was noted as congested. Towards the right she was able to count fingers at three feet, towards the left not at all, but she could make out movements at three inches.

On November 1 little change is noted in her sheet. Still complains of headache in her more conscious periods; at other times she is wildly delirious; optic neuritis more marked. Blood-pressure, temperature, were all normal; cerebrospinal fluid escaped under some pressure; both it and the blood were negative for Wassermann. X-ray examination of the skull showed nothing abnormal. She had some vague delusions about this time: she refused to take fluid out of a feeding-cup, and subsequently it was discovered that she thought that there was urine in the cup.

On November 2 Prof. Fullerton did a decompression operation. I said the pressure was about the right optic radiation, pressing forwards on the posterior parts of the internal capsule, causing the hemianæsthesia and the hemiparesis. A trephine opening was made over the temporo-sphenoidal lobe; the dura mater bulged, was incised, and a soft fluctuant cortex exposed. A grooved probe allowed some thickish, darkish, bloody fluid to escape, and Prof. Fullerton then obtained some more with his evacuator; in all he thought there was nearly 3 oz. The brain collapsed. From a surgical point of view the patient made an uninterrupted recovery. Pathological examination did not reveal any tumour-cells or other guide as to the nature of the cyst. On November 5 consciousness was much clearer, but she had no idea of time or space; later she knew that she was in hospital, but had a dread that she was going to an asylum.

On November 25 she was able to sit up and read, and pointed out a passage in Omar Khayyám where no faith is expressed in doctors, and she said that she now did not agree with the passage. She seemed to have some hallucinations, which she kept very closely to herself: she thought that she saw a doctor whom she had consulted in ——— walking across the ward floor, also a doctor of ———, but she was very reticent. During December she was very variable: some days she showed signs of great fear, fits of crying, depression, and complained of pain in her head; she wanted to go to the bathroom by herself, but was not allowed. She took about nine or ten short turns of depression now, for a time nearly every day, wouldn't speak, covered her head in the bedclothes, her body curled up, her forearms folded before her face; then she said that she was sorry that she came out of the anæsthetic—that she was no use in the world. When she was well she was always trying her memory; she was anxious to be precise about facts, dates, etc.

She was discharged on December 27, but became worse, and had to have some one constantly with her. She was taken across to England and had to be confined in an asylum. We had a letter from ——— on February 2 saying that she was well, but had still some left hemianopia, some hallucinations of noises in the head, sometimes conversations and sometimes vague delusions. Lately she wrote a letter to Prof. Fullerton, well expressed, thanking him for all his trouble, and on June 3 a post card to the sister of the ward saying she was home and well.

My reading of the case is that (1) she had an unrecognized attack of encephalitis lethargica, (2) that the blood-cyst was one of those rare extreme developments of the small hæmorrhages that are commonly found in this disease, and (3) that she suffered from a mild acute confusional insanity following the intense pain, the anæsthetic, the operation, and finally the fear of going mad and of poverty. Whether the site of the lesion had anything to do with the hallucinations of sight and of hearing or not is a matter of debate.

The complete recovery of power and feeling after the evacuation of the cyst, and of the optic neuritis, but the permanence of the left hemianopia, point to some destruction of the optic radiation, but to pressure only on the sensory and motor fibres. The loss of power was slight, and scarcely noticeable in the face.

(¹) A paper presented at the Annual Meeting held at Belfast, July 2, 1924.

Medico-Legal Note.

REX v. FRANK AMOS ZEALLEY.

THIS case was tried at Worcester Assizes, on October 21, 1924, before Mr. Justice Lush. The offence charged was that of gross indecency with a male person on June 8. The prisoner pleaded "guilty."

Dr. Gilbert Scott, of Malvern, gave evidence on behalf of the defence. Having briefly outlined the Freudian theory of the development of the sex instinct, and of its possible "fixations," he stated that, since the offence, he had been treating the prisoner by psycho-analysis. There had already been improvement in the prisoner's mental condition, but Dr. Scott expected that the treatment would extend over two years. On this evidence the prisoner was "bound over," he undertaking to continue under Dr. Scott's treatment.

The case is of interest as indicating that courts are beginning to recognize that persons who commit offences of this kind are proper subjects for psychological treatment rather than legal punishment. Further, it is one of the first cases in which treatment by psycho-analysis has been definitely mentioned in, and accepted by, a British court.

Occasional Note.

The Royal Commission on Lunacy and Mental Disorders (England and Wales).

THE subject which occupied most attention at the Quarterly General Meeting held on November 20, 1924, was the terms of the evidence to be tendered to the Royal Commission now sitting at 5, Old Palace Yard, Westminster, under the Chairmanship of the Rt. Hon. Hugh Macmillan, K.C.

The Committee of the Association appointed at the Annual Meeting in July, 1924, to prepare a *précis* of evidence which would embody the views of the Association as a whole and not of any

particular section, had a difficult task to perform for reasons which are readily stated. It is the ambition of the Association to gather and retain within its fold all the psychiatrists in Great Britain, Ireland and the Empire beyond the Seas irrespective of the particular field of psychological medicine and education they are most interested in. Thus its ordinary membership includes psychiatrists practising in mental hospitals of all kinds and mental defective institutions, psychiatrists in consulting and in general practice, professors and lecturers in universities and medical schools, medical officers in education and prison services, in the service of the Ministry of Pensions, the Board of Control, etc.

It is therefore to be expected that the viewpoint of these diverse groups on many matters the Association has at heart might be from widely different angles as regards details and practical measures, although there might be general agreement on the principles involved.

Thus the Committee would experience no great difficulty in defining the principles and ideals the Association has always stood for in regard to the matters at issue, but to find formulæ which would be generally acceptable to members as to how best these principles and ideals might achieve fruition in practice—formulæ which, of necessity, had to be at once logical, concise, and lucid—was another matter.

The Committee have met on many occasions, and their deliberations have involved conferences with allied bodies and much correspondence. They have taken their responsibility most seriously, and earnestly devoted much time, both individually and collectively, to the task set them, and in this respect Dr. R. H. Cole, the Chairman, and Dr. Brooks Keith, the Hon. Secretary, are worthy of special commendation.

It must have been gratifying to the Committee to feel that, on the whole, their labours won the approval of the members present at the recent Quarterly General Meeting, who expressed this by adopting the draft memorandum which was submitted by the Committee, with a few emendations, especially in the direction of a more particularized attention being given to the second part of the Royal Commission's reference. This draft memorandum, prior to its submission, had been revised on some points by the Parliamentary Committee and approved of by the Council.

Since then the Committee has continued its labours, and appointed witnesses who will in due course appear before the Royal Commission. Sir Frederick Mott and Lt.-Col. Edwin Goodall have consented to present the Association's case on early treatment and psychiatric education and research, the latter witness dealing

especially with the establishment of clinics. Lt.-Col. J. R. Lord will give special evidence in regard to psychiatry, legal and administrative, as practised in some European countries and in the United States of America. Other witnesses are Dr. R. H. Cole (registered hospitals, licensed houses, private patients of all kinds, and allied matters), Dr. W. F. Menzies (central and local authorities), Dr. M. A. Collins (public mental hospitals, voluntary patient and legal formalities), and Dr. R. Worth (after care, etc.).

The Final Memorandum conveying the *précis* of evidence has been completed, and forms one document with three appendices which give the evidence to be presented by Sir F. W. Mott, Lt.-Col. Edwin Goodall and Lt.-Col. J. R. Lord. It embodies the draft memorandum prepared by the Committee and adopted by the Association, and also the Report of the English Lunacy Legislation Sub-Committee as amended by later proceedings.

Out of courtesy to the Royal Commission we refrain from publishing the completed *précis* of evidence until it has been submitted, but our report of the discussion which occurred on this subject (*vide* p. 155) would be unintelligible if no reference were made to some of the guiding principles and ideals upon which the Association's recommendations are based. These may be thus stated :

Clinics for the investigation and treatment of mental disorders should be established, preferably in connection with the universities, medical schools and general hospitals.

The reception into mental institutions of patients, whether of the paying or of the rate-aided patients class, should follow a similar procedure.

A considerable proportion of admissions to mental institutions should be dealt with on a voluntary basis, and that such voluntary treatment should be extended to the rate-aided class, for which legislative sanction has already established precedents at the Maudsley Hospital and at the City of London Mental Hospital. Special legal machinery should be devised for treating early non-volitional cases.

A "provisional order" should be instituted as an intermediary measure before the usual "judicial order" for detention is enforced. When such detention is necessary medical certification should take place as constituting evidence, but that the authority for detention, discharge and continuation (*i.e.*, renewal) of orders should entail the responsibility of some authorized person not acting in a medical capacity.

A broader conception should be taken of the functions of both the central and local authorities for "lunacy" or mental health administration.

The Poor Law authorities should be superseded by the local authorities in regard to the care, treatment, and maintenance of necessitous patients suffering from mental disorders.

We welcome the appointment of this Royal Commission, and trust that the outcome of its findings will be a Government Mental Treatment Bill which will be, in a great measure, in harmony with the aspirations of the Association.

Part II.—Reviews.

The Human Testis: Its Gross Anatomy, Histology, Physiology, Pathology, with Particular Reference to its Endocrinology, Aberrations of Function and Correlation to other Endocrines, as well as the Treatment of Diseases of the Testis, and Studies in Testicular Transplantation, and the Effects of the Testicular Secretion on the Organism. By MAX THOREK, M.D. London and Philadelphia: J. B. Lippincott & Co., 1924. Med. 8vo, pp. x + 547; 308 figures. Price \$5 or 38s. net.

It is with special pleasure that one desires to review at length an important monograph by Dr. Max Thorek on *The Human Testis in Health and Disease*. For the author, not satisfied with a wide surgical experience, has also devoted his time and attention to experimental and laboratory investigations, and, in my judgment, it is this conscientious and painstaking endeavour to familiarize himself practically with all the facts appertaining to the subject, which has enabled him to sift and correlate the facts relating not only to his own work, but to that contained in the very numerous publications of other investigators. Many of the chapters will be of especial interest to psychiatrists, and especially to those who seek a physiogenic relationship of disorders and dystrophies of the reproductive-endocrine system of glands and mental diseases. There is no doubt in the mind of the author that continued research will soon establish definitely the identity of the internal secretion of the testis and its chemical composition, and he supports this by reference to the works of Winiwarter, who claims to have followed the transition of mitochondria to crystalloids. He refers also to the work of Duesburg, Iscovesco and Mulon on the same lines. Max Thorek does not agree with the view that the Leydig cells are controlled by centres situated in the hypothalamic region or elsewhere, for they continue to live after transplantation of the testis.

The physiology and function of the internal secretions is fully considered, and the history of our knowledge of the rôle of the Leydig, seminiferous and Sertoli cells from the earliest times until now is narrated: "From the time of Hippocrates and Aristotle it has been believed that there was a correlation between the testicular fluids

and the nervous system and spinal cord." The anatomists and physiologists of the sixteenth and seventeenth centuries understood that there was a connection between the functional organs of generation and other parts of the body. They knew that eunuchs and castrated males showed feminine characters. The view that the testicle is an organ with a double function is an old one. The point, however, which has caused particular dispute is not the question of a separate testicular secretion which influences sex-characters, but rather what particular structure is responsible for such secretion and how it acts. There seems to be a general consensus of opinion that the interstitial cells are entirely responsible for sex potency, libido, eroticism and retention of the secondary sexual characters. This is borne out, as will be seen, by castration and experimental transplantation in men and animals. Probably the work was in the press before the important communication by Carl Moore upon "The Behaviour of the Testis in Transplantation, Experimental Cryptorchidism, Vasectomy, Scrotal Insulation or Heat Application" was published in *Endocrinology*, July, 1924. These experimental investigations appear to prove that the scrotum of animals is now to be considered a local thermo-regulator for the testis, and that the regulatory or functional capacities are indispensable for the production of differentiated germ-cells, or the maintenance of those already produced. This is of great interest from both a practical and evolutionary biological point of view. In the Monotremes, the lower reptile-like mammals in which it is said body temperatures are by no means constant, the testes are located in the reptilian position, *viz.*, just posterior to the kidneys in the abdomen. As we ascend the scale of mammals a typical scrotum is gradually produced. Moore asks: May we not consider that perhaps the gradual evolution of a scrotum within the mammal group may have played an important part in the evolution of the whole of the Mammalia? He points out that on hot days the scrotum relaxes to its full pendent position, permitting the testis to be further removed from the body, whereas in a cold atmosphere the scrotum is contracted and brought nearer the body.

The author gives an admirable summary of the effects of the internal secretion of the testes upon growth and metabolism. Weil's studies relating to body proportions and sex-gland abnormalities are summarized; likewise Pézard's researches on the effects of castration are fully described. A very interesting account is given of a religious sect living in Russia and Roumania, called "Skopzies," whose religion prescribes that male members be castrated. This sect was studied by William Koch, who resided among them during the war. He recognized four types:

- (1) The ordinary type with long extremities.
- (2) The type of gigantism.
- (3) The type with acromegaly.
- (4) A type with hypophyseal adiposity.

The type seemed to depend upon the age at which the castration was carried out. Maxim Gorky describes a Skopzie in his *Memoirs, Under Strange People*.

The author, having recorded a number of interesting facts concerning the physical and psychic characters of castrates, concludes "that the incretory function of the testes is of vital importance for the well-being of the individual, and that its correlation with other endocrine glands is fundamental."

A very interesting account is given of eunuchoidism, of which there are three types :

(1) Feminism.

(2) Genito-dystrophic gerodermia—a condition where the male is "old and seems young" or "is young and seems old."

(3) Falta's type, or the tardy type, which appears after normal general sexual development and which then begins to show regressive symptoms.

Precocious puberty, dwarfism and gigantism and their relation to gonadal and other endocrine dysfunctions are fully considered—all these interesting facts are accompanied by descriptions of cases and excellent photographs.

The author gives a good summary of Steinach's vaso-ligation experiments and so-called "rejuvenation" operation. His own experiments on the higher apes and operations on a number of human beings, according to Steinach's dicta, gave, in some instances, good results ; in others the results were disappointing. The following summary of the author's opinion is of considerable value :

"(1) I am opposed to the term 'rejuvenation.' It is misleading and may create a great deal of harm, particularly with the laity, who are bound to exaggerate.

"(2) More clinical data from unbiased sources are necessary to form a definite opinion. Human data are the only reliable criteria, because what may hold true in the lower form of Mammalia may often be found reversed in the human.

"(3) Clinical evidence supported by laboratory checking will in due time establish the merits or demerits of the Steinach procedure. Presently a mass of evidence is inclined to pessimism, although some good results are reported from some quarters."

A very interesting chapter to the readers of the *Journal* is that on "The Male Climacteric," in which he points out that between fifty-five and sixty-five there is in many males a marked mental and bodily change, which in some cases is associated with arteriosclerosis. There is a type of neurasthenia and involutional melancholia well known to neurologists and psychiatrists, which probably has its origin in testicular retrogression. In some cases there is for a short time a sexual recrudescence. An editorial in the *Journal of the American Medical Association*, 1911, lvii, p. 1212, in discussing the male climacteric, remarks "that certain tolerably characteristic symptoms not unlike those presented by women in the change of life are undoubtedly manifest in many men about the age of sixty-three, and will be vouched for not only by physicians in general practice, but also particularly by nerve specialists, to whom these patients turn for relief. Attention has been focussed on these patients by Mendel when he speaks of the '*climacterium virile*,' with lack of secretional control and a tendency to shed tears, combined with

outspoken signs of depression, disinclination for exertion, lack of will-power and irritation, other symptoms sometimes prominent being dizziness, sense of pressure in head, hot flushes and palpitation of the heart."

Steinach's interesting experiments showing that the substances of internal testicular secretion have a selective action of storage in the central nervous system are of especial interest in relation to these diseases.

Some very interesting experiments of Max Thorek on transplanted testes in six *rhesus* monkeys may be alluded to. It was found that when X-ray was applied that the transplant thrived, while in the control animal upon which the transplant was not X-rayed it was completely absorbed. The author explains this by the few leucocytes found around the X-rayed transplant and the abundance of leucocytes around the control. He gives proper dosage in order to bring about the result for the preservation of the interstitial cells and an adequate blood-supply to enable them to thrive and function.

A very complete survey of reported cases of transplantation experiments by various workers—for example, by Voronoff—who employed apes, is given.

Now there is a strong biological reason why grafts from bovines, dogs, etc., are not successful when applied to man, and the investigations by Nuttall of blood-affinity of man with the Simiidae offers some assurance of successful transplantation of "monkey gland."

A particularly interesting chapter to psychiatrists is that on "Dementia Præcox and the Gonads." It commences with the account of the investigations of Gibbs (*Archives of Neurology and Psychiatry*, 1923, ix, p. 73), in which the author shows that failure in sex-growth and behaviour is due to a biological inadequacy, but a limitation to the sex mechanism should probably not be inferred. "There is a total functional deficiency in most of these patients. Adequate functional activity of the thyroid, pituitary and suprarenals seems to be necessary for sex-growth." This is entirely in accordance with my histological observations of pituitary, thyroid and adrenal glands in one hundred hospital and asylum cases. Obregia, Parhon and Urechia of Bukarest state that the seminiferous tubules are regularly attacked, and absence of spermatogenesis is the rule. These authors have put forward the hypothesis that the cells of the seminiferous tubules may have an internal secretion. The hypothesis of a perverted internal secretion of the seminiferous tubule is rendered untenable by the fact which Bleuler raised against Bornstein's hypothesis (exaggeration of puberty phenomena). This fact is that unilateral or bilateral castration does not exert any favourable action on the evolution of dementia præcox. Todde found that in mental disease generally the testicles were smaller than in normal subjects, but that the diminution reaches its maximum in phrenasthenia; it is less marked in dementia præcox.

An undue prominence is given, unfortunately, to the work of Matsumoto, who merely looked over my specimens and was in no way responsible for the findings, as he only confirmed what I had

already explicitly stated in a paper which was published in the *British Medical Journal* in 1919, entitled "Examination of the Testes in One Hundred Hospital and Asylum Cases." The author later refers to this paper in highly appreciative terms, as well as to another paper on "The Interstitial Cells in Dementia Præcox and Post-adolescent Dementia" by myself and Prados-y-Such. The conclusions are quoted verbatim with approval, together with the tabular summary of results and most of the original illustrations.

It is interesting to note that at the present time the author has a number of cases of dementia præcox under observation in which human testicles have been implanted. Reports of some seem hopeful, but it must be remembered that spontaneous remissions of symptoms are not unknown. I am doubtful, having regard to the fact that this disease is in all probability a genetic inadequacy affecting many organs of the body, and especially the telencephalon, whether any treatment is likely to give more than temporary benefit. However, seeing that modern investigations show that the interstitial cells have an energizing effect upon all the organs of the body, and, as the author has shown, an implanted testicle may retain its interstitial cells, such operative procedure is of great interest and importance, and it is more likely to be attended by good results than by the method of injections. Still, having regard to the remarkable effects of insulin, it is possible that an analogous substance may be prepared from the testes; but Steinach's experiments show that it is only likely to have an effect on the central nervous system if the substance be obtained from animals of the same species—either anthropoid apes or man.

As a result of the author's own experiments and observations he concludes "that the practicability of therapeutic transplantation from the higher apes to man is proved beyond any doubt." The indications and contra-indications for sex-gland transplantations in the male are fully discussed, likewise the technique is very carefully described in all its details. The reader is able to follow the technique by its clear exposition and the numerous diagrams and photographs by which it is illustrated.

The concluding chapters deal with such subjects as neuroses of the testicle, diseases of the scrotum, varicocele, hydrocele, and their medical and surgical treatment.

This authoritative standard work by Dr. Max Thorek, Surgeon-in-Chief to the American Hospital, Chicago, and President of the International Congress of Comparative Pathology, Rome, 1924, on *The Human Testis in Health and Disease*, should prove of great value to the medical profession generally and to psychiatrists especially on account of its clear exposition, practical character, first-hand knowledge and up-to-dateness. The book is printed on art paper and illustrated by 308 excellent diagrams, photographs and photomicrographs. There is an excellent bibliography at the end of each chapter and an index of over 500 authors cited.

FREDERICK W. MOTT.

The Law relating to Lunacy. By Sir HENRY STUDDY THEOBALD, K.C., M.A. London: Stevens & Sons, Ltd., 1924. Medium 8vo. Pp. xxxvi + 854. Price £2 10s. net.

It was with considerable interest that we read of the publication of yet another volume on Lunacy Law. What was wrong, we asked ourselves, with Archbold, Fry or Wood Renton? Were they all out of date, or found wanting in some respect? One, perhaps all of them, had been friends in need—faithful and reliable. They had solved many a knotty problem for us, and indeed without such guides we should not proceed far in either private or public lunacy practice.

We know that such works are something more than mere copies of Acts of Parliament. We also know that Acts of Parliament do not constitute law. It is only when they are read and construed by the lawyers that the law begins to reveal itself to the layman. We remember, too, that the lawyers have never done construing (the uncharitable call it hair-splitting—twisting if you like), and that there is no finality to law, and that as regards the law, fond imaginings of to-day may prove vain to-morrow. Books on lunacy law should, then, be up to date, although maybe no new Lunacy Acts have been placed on the statute book.

Could, then, a place be found for the new-comer?

We were encouraged to think so, for the author's name was well known to us as that of a Master in Lunacy who was knighted on retirement in 1922, after some fifteen years' service. The experience thus gained of a side of lunacy practice which seldom catches the public eye would surely be of interest and importance.

Our surmises have proved correct, and Sir Henry Studdy Theobald's *Law relating to Lunacy* differs in many respects from all other treatises we have met with on the same subject. We confess, too, that we were afraid lunacy regulation or management and administration, strictly speaking, might bulk largely in the new work to the detriment of those other provisions of the Lunacy Acts the psychiatrist is more often in contact with; but we are now in a position to say that no aspect of the subject is neglected; every phase of lunacy law and practice is comprehensively considered, and, probably for the first time, lunacy regulation, or management and administration are adequately dealt with, and, at least in these latter subjects, Theobald's *Lunacy* will be a standard work for years to come.

Other books dealing with lunacy law, like the familiar ones already mentioned, comprise mainly copies of the Lunacy Acts, the various sections and subsections being profusely annotated. As a prologue there is either an introduction explanatory of the Acts, or a more or less complete *résumé* of the lunacy law under various headings used in the Acts, or perhaps a dissertation on some branches of Lunacy Law not dependent upon statute.

Theobald's work, however, is different. The Lunacy Acts, etc., without any annotation form merely appendices. They are no doubt included for convenience of reference, and they have the advantage of being printed as far as possible as amended by subsequent enactments. These appendices comprise the Lunacy Acts,

1890, 1891, 1908, 1911 and 1922; Rules in Lunacy and Order as to Fees, 1892-1921; Rules, 1890, as to Business of County Courts and Justices; Rules of Lunacy Commissioners; Asylums Officers' Superannuation Act, 1909; Mental Deficiency Act, 1913; Asylums and Certified Institutions Act, 1918; Mental Deficiency Rules. In a sense, the appendices could have been omitted without materially altering the value of the book or impairing its usefulness.

The greater part of the work is, as its title states, devoted to law relating to lunacy, and in its widest sense. The historian peeps out in nearly every chapter; indeed, many chapters are so rich in legal and historical research that an additional title of "A History of English Lunacy" would not have been out of place.

It is a book to be read and studied—in fact a text-book—rather than a work of reference. It can be read, too, with pleasure by the fireside. This cannot be said of many law-books. It is a serious book, though, and Sir Henry Studdy Theobald does not hesitate to criticize and condemn, or neglect to urge reform, where he thinks necessary. We cannot, of course, give the history of the book, but it is obviously the outcome of years of close study and patient research, and of a great practical experience of the subject.

Theobald's *Lunacy* is not likely to displace a recent edition of, say, Archbold, as a work of reference, especially in an emergency; but occasions such as these would be rare if the psychiatrist had a more systematic understanding of the subject. This understanding Theobald sets himself to convey. The manner in which he does it we will now attempt to show.

He first introduces the reader to the origin of lunacy law and administration in England under the heading of "Prerogative of the Crown." This part of the book, which occupies Chapters I to VII, is largely historical. The reader is made acquainted with the origin of the King's guardianship of the insane—at first largely for the King's own profit, and ultimately solely for the protection of the insane; how it was first limited to natural fools and idiots who were possessed of lands, and then extended to all the insane, which included the idiots. The King's guardianship still exists as "a parental and protective jurisdiction for the benefit of the lunatic." Following this, the persons and the property subject to the Prerogative, and the extent of the Prerogative are closely considered. How the Prerogative has been, and is still being, exercised, and by whom, is then disclosed. We learn all about the Court of the King's Wards which existed until the time of Charles II, the jurisdiction in lunacy of the Lord Chancellor, and of Lord Justices of Appeal in Chancery, and the effects in lunacy of the Judicature Acts of 1873 to 1881. We are shown a copy of the Commission or Warrant under the Sign Manual for the exercise of the Prerogative, and told what happens as regards the King's Prerogative on the demise of the Crown. Of this Commission he says:

"It is addressed to the Lord Chancellor, the Master of the Rolls and the Lord Justices, but not by name, and is signed at the foot by the Home Secretary. It bears a 10s. stamp.

"The warrant is not addressed to any person by name, but whenever there is

a new Lord Chancellor, Master of the Rolls or Lord Justice a new warrant is required. The Lord Chancellor, as such, has no jurisdiction in Lunacy. That jurisdiction is entrusted to him by Royal Warrant under the Sign Manual, and until he has received this warrant he cannot act in Lunacy.

"This picturesque but tiresome procedure should be swept away by an Act of Parliament providing for the exercise of the Royal Prerogative in relation to lunatics by the proper officers."—(p. 13.)

The Prerogative in relation to the combined jurisdiction in Chancery and Lunacy, to the Lunacy Acts, 1890 and 1891, and Lunacy Appeals is discussed. As to lunacy jurisdiction and the general jurisdiction of judge, the author says:

"The jurisdiction in Lunacy is based on the Sign Manual, but after the grant of the custody, the powers of the Lord Chancellor as keeper of the King's conscience and the powers of the Lord Justices as Judges of the Supreme Court of Judicature apply."—(p. 16.)

It is learned that the powers possessed in lunacy matters by the Lord Chancellor are (a) those by virtue of the powers belonging to him as Keeper of the King's Conscience, and (b) those conferred on him with others under the Sign Manual as to the exercise of the Prerogative of the Crown.

This is all necessary before we can begin a proper understanding of "The Inquisition," which takes up Chapter III. We are told, in the first place, who may apply for such inquiries. It is interesting to know that—

"Persons detained as lunatics often express a wish for a Commission to investigate their mental condition, in the hope that the result may be a finding of sanity, but such a Commission has never been granted on the petition of the lunatic himself."—(p. 19.)

We continue our study of inquisitions: persons subject to inquiry; petition for inquiry, proceedings after order but pending inquiry; persons to hold inquiry, which includes a historical section on "Escheators," issue on inquiry; place of inquiry; mode of trial, etc. All these matters are treated historically, which gives the reader an insight regarding them which would otherwise not be obtained. There follow sections on "Invalidity, Traverse and Supersedeas"—terms often seen, but rarely understood.

The outcome of an inquisition might be the appointment of committees of estate and person. Such committees are dealt with very completely: their appointment, remuneration, security; their relation to the property of the lunatic; their powers and duties; and their liability and accounts. A section follows dealing with receivers. As regards the accounts of committees, he says:

"There has in recent times been much laxity in enforcing accounts by Committees of the person. It was found that in many cases such committees had considerable balances to their credit, which they were ready, and in fact anxious, to account for, but they had never been called upon to do so. There is no doubt that committees of the person have, in the past, often been allowed to put substantial sums into their own pockets owing to laxity of supervision. By the Rules of 1892, the committee of the person is required annually or from time to time to render to the Visitors a statement in writing of the various sums expended by them, the better to enable the Visitors to ascertain and report whether the lunatic is being suitably maintained and whether any additional comforts can be provided for him.

"The statement required by the Rule is merely for the information of the Visitors. The Visitors have not the time or the means for taking an effective account, and

they have never attempted to do so, though the statement has sometimes enabled them to call attention of the Master to points requiring explanation."—(p. 53.)

An interesting chapter is that on the Lord Chancellor's Visitors: their origin and history, method of appointment, pay, qualification, etc., are all told. A list of those who have held office from 1843 is given.

This part (Part I) of the book concludes with an essay on the "Separation of Chancery and Lunacy," in which chancery and lunacy are contrasted, the evils resulting from chancery practice being imposed upon lunacy described, and it is shown that the improvement of lunacy administration has largely consisted of freeing lunacy from the domination of chancery practice and procedure. Lord Lyndhurst was the first to take up this matter. The creation of the office of Master in Lunacy completed the separation of lunacy from chancery.

The author, referring to the office he held with distinction for so long, says: (The Commissioners in Lunacy referred to were those appointed under the Act of 1842 for the purpose of holding inquisitions.)

"Thus a separate Lunacy Office was constituted, but the officers of that Office retained the name of Commissioners in Lunacy for three years only. The name was wanted for another body, which, though not created by the Act of 1845, was reconstituted and reorganized by that act with larger powers. The Commissioners in Lunacy of 1842 became Masters in Lunacy. They were to perform the duties hitherto performed by the Masters [in Ordinary] in Chancery in relation to lunatics. . . . Masters [in Ordinary] in Chancery were abolished in 1852 and their place was taken by Chief Clerks. . . . These Chief Clerks received the title of Masters [in Chancery] in 1897, but the real representatives of the old Masters in Ordinary in Chancery were the Masters in Lunacy."—(p. 62.)

Having thus, in Part I, as it were, laid the foundation of our English lunacy system, in Part II he develops his theme by an examination of the growth of legislation from 1774 to 1922. This part of the book, largely historical, is of absorbing interest.

Only the lunatic so found by inquisition had the benefit of the Royal Prerogative.

"For centuries no special protection was provided for the person or the property of lunatics not so found by inquisition, though their number must always have largely exceeded the lunatics so found. They could be confined in asylums and kept in private care without any legal authority."—(p. 60.)

He goes on to show how the insanity of King George III drew public attention to the subject of lunacy. Parliament had already inquired into the matter and attempted legislation.

"When once a person had been placed in a private asylum it was not difficult for the keeper to prevent him from having any access to the outer world, and a person who had disappeared into a lunatic asylum was very often not heard of again. . . . Patients were wrongfully detained; they were treated with great cruelty; they were often unsufficiently clothed and underfed; they were subjected to the terrors of solitary confinement and to methods of mechanical restraint which rivalled in cruelty the torture chambers of the Middle Ages."—(p. 65.)

He traces how Parliament in 1774 at last became convinced that something must really be done, and that year saw the commencement of a series of Lunacy Acts culminating in the famous Consolidating Act of 1890.

With much acumen the author deals with the evolution of lunacy

law and practice, and the gradual improvement which occurred in the care and treatment of the insane. He tells us of the attitude of the people of those days to lunacy, of the Acts of 1828 and 1832, establishing "Temporary Commissioners in Lunacy," and of the great Act of 1845 which called into being a "Permanent Lunacy Commission," and also contained elaborate provisions for the prevention of wrongful certification, detention, and other known abuses. We learn a lot about these Lunacy Commissions and what was expected of them. Of the Permanent Commission of 1845 he says :

"There was a great opportunity in 1845 of a comprehensive survey of the whole subject of Lunacy, when care and treatment, visitation and management of property might all have been brought under one great administrative department under the supreme authority of the Lord Chancellor. The Prerogative of the Crown might have been re-modelled so as to include within its protective care every lunatic."—(p. 71.)

Another chapter describes the progress from 1853 to 1891.

We leave Theobald's book for a moment to glance at two other works on lunacy law which appeared during this period.

What tribute can we pay their authors? Did they not convey the knowledge of these new things to where it was needed? By their studies and inquiries did they not guide for half a century or so, lawyers, psychiatrists, administrative officers, in fact everybody connected with lunacy procedure and practice? We asked the other day: Who was Archbold and what manner of man was he? We have found out some personal details regarding him, and hope in due course to present them to our readers. In the meantime we may say that the author of Archbold's *Lunacy* was Mr. John Frederick Archbold, a barrister-at-law and a member of Lincoln's Inn, being admitted on May 5, 1814. He resided at 9, King's Bench Walk, Temple. He published the famous treatise associated with his name in 1854. It was called *The New Statutes relating to Lunacy, comprising the Law relating to Pauper Lunatics with the Practice and Practical Forms, very fully given; also the Law respecting Lunatic Asylums, Public and Private, with the Duties of the Commissioners in Lunacy and Visiting Justices*.

There is no doubt that the almost revolutionary Lunacy Acts of 1845 (for there were two) gave lunacy law and administration its modern complexion. Of the Lunacy Acts of that year, one was repealed almost immediately, although it contained important provisions relating to the separation of curable and incurable cases. Neither is there any doubt that the surviving Act (8 and 9 Vict. Cap. 100) was a great statute, and it has been rightly called the "Magna Charta of the insane." It was this Act, and an amending Act (which established the discharge of patients on probation with an allowance) of 1853, which Archbold refers to as "new Statutes." In his preface he says :

"The Lunatics Acts passed in the last session, with a former statute on the same subject, 8 & 9 Vict. c. 100, form together a complete system of law for the management of lunatics throughout the Kingdom. In examining these Acts it is interesting to mark the care, the anxiety, the Legislature have evinced in making every necessary provision for those unhappy beings who cannot take care of themselves

—for their cure, if possible—but at all events for their management and comfort, for their lodging, maintenance, medicine, clothing and care, and for the management and application of their property, if they have any. Public asylums are provided, private establishments licensed, and hospitals registered, for the purpose, and all are placed under the supervision of a Board of Commissioners. Rules and regulations are made for their government; every precaution is taken that none but persons who are really insane, and proper subjects for detention under care and treatment in such asylum, licensed house or hospital be admitted into or detained in them; and a system of visitation is provided, by which the proper treatment of the patients is insured, and every abuse detected and corrected."

As everybody knows, that was not the last word on lunacy law and management. Already a great battle had begun which still rages. Theobald, speaking of the feeling in those days, says:

"Persons interested in the subject were divided into two camps; there were the medical men who desired early and easy treatment of persons afflicted with mental disease, and at the same time demanded protection against the risks they ran in certifying persons as lunatics, and there were the lawyers who attached more weight to the liberty of the person than to the possibility of a cure by facilitating for compulsory confinement."

Fry's Lunacy Laws appeared in 1864, the author being Danby P. Fry, of Lincoln's Inn, barrister-at-law. He had a great knowledge and experience of the Poor Law, and strongly felt the necessity of a consolidating measure which would bring together the nine or so Lunacy Acts which had become operative since 1774. It was a useful work, and his object was to "approximate towards consolidation."

To return to Theobald. It was not until 1862 that something was done for the protection and administration of small properties belonging to patients not so found, but the Act of that year provided no proper control over any receiver, and there was sometimes laxity in the application of surplus income. The reforming zeal of Lord Chancellors which led to the Judicature Acts of 1873 and subsequent years had its effects on lunacy practice, and the Lunacy Orders of 1883 effected many improvements.

The position of affairs as left by the Act of 1845 was still considered unsatisfactory as regards certification. Theobald now traces how the insane obtained the full protection of the law. The so-called order was a mere authority and had nothing of a judicial nature about it. It was Lord Selborne, then Lord Chancellor, who in 1885 took up this matter and introduced a Bill which would give every insane person needing detention the protection of a judicial inquiry which would be "simple, speedy and inexpensive."

"The Bill met with opposition from a quarter where it might have been least expected. Lord Shaftesbury, who had been the leader of the movement for improving the care and treatment of lunatics, had seen his own proposals for reform carried into effect. He was at this time Chairman of the Lunacy Commissions, but his reforming zeal was spent, and he was strongly opposed to Lord Selborne's Bill so far as it required a judicial inquiry as a condition precedent to the lawful detention of a lunatic under care and treatment. He went so far as to resign his chairmanship of the Commission, but before the resignation had been accepted the Government went out of office, and the Bill was suspended for the time being. He therefore continued chairman until his death, which happened soon afterwards in October, 1885."—(p. 79.)

However, Lord Halsbury, who succeeded Lord Selborne, reintroduced the Bill, which became the Lunacy Acts Amendment, 1889.

Of course, Theobald may be right as to the reasons for Lord Shaftesbury's opposition, but is it not possible that Lord Shaftesbury had a foresight of the future trend of events? It is this judicial inquiry, this trial at law as it were, this certification, this State branding of a person suffering from mental disorder as a "lunatic," which so many people object to, which has the effect of delaying proper care and treatment, and which leaves an unforgettable and unforgettably stigma. Perhaps Lord Shaftesbury thought something short of this judicial interference was sufficient to secure that the "liberty of the subject" was not unduly interfered with. If so, a multitude of people think with him, and so did the devisers of the Mental Treatments Bill of 1923. All historians will agree that Lord Shaftesbury held strong views on the necessity for early treatment. Speaking before a Select Committee in 1877, only eight years before, he said :

"The great principle of the Act of 1845 was early treatment; we maintain that by early treatment you may reduce the amount of lunacy to a very considerable extent. The asylums were to be divided into two; there was to be the principal asylum, which was for the acute cases, and there was to be the chronic asylum alongside of it, which was for old chronic incurable cases. All the recent cases were to be sent to the principal asylum, which was to have a full medical staff, and everything which could be necessary for treatment and cure, and the other cases were to be sent to those chronic establishments."

From 1853 to 1891 was the era of consolidation and revision in lunacy matters. Theobald more than once laments the fact that opportunity was not taken in 1889 to unify lunacy procedure.

"It may strike a critic, looking back from the experience of nearly forty years that it would have been better if the reforms of 1889 had dealt with the Crown's Prerogative in such a way as to introduce one uniform procedure and to get rid of the distinction between lunatics so found by inquisition and those not so found. But the old procedure by inquisition was treated as sacrosanct and left untouched. It still survives, but in a moribund condition. In 1800 there were about 1,200 lunatics so found by inquisition; by 1922 the number had dwindled to something between two and three hundred, and it is likely gradually to diminish."

Amending Act and Consolidating Act were introduced in 1889 at the same time. The former was passed and then consolidated with, and repealed by the latter which was passed in the following year, and thus the existing Lunacy Act of 1890 became law. It was amended in certain particulars by the short Act of 1891.

And so the story of present-day lunacy law is told, and "with the year 1891 the ancient history of lunacy closes, and modern history begins." Chapter X discloses the changes from old to new; records the occurrence of the Royal Commission of 1904 and the Tomlin Commission; discusses the question of amalgamation of Masters, Visitors and Lunacy Commissioners; and the passing of the Mental Deficiency Act of 1913, etc.—a chapter both instructive and illuminating.

Having by means of a reasoned history introduced the reader to present-day lunacy law and practice, in Part III he tells us all about "Existing Administrative Machinery." In Chapter XI he talks about Masters in Lunacy and their staff, the Lord Chancellor's Visitors, the Official Solicitor, and the Board of Control. A chapter is devoted to "Pay, Pensions and Allowances."

Of the Lord Chancellor's Visitors he says :

"The truth is, that if visitation is to be more than mere routine, medical knowledge is required, and a doctor of experience must inevitably be more useful than a barrister or solicitor, however tactful, judicious or worldly wise he may be. There is also no doubt that visitation by a lady, whether medical or not, would be most valuable."—(p. 132.)

In another place the same view is expressed :

"The reason why one of the visitors should have been a barrister is obscure. The proper person to visit a lunatic and advise upon his care and treatment is a medical man. The medical Visitors were not likely to require legal advice, and if they did a barrister who might have only five years' standing was not the person to give it. Probably the post of legal Visitor was created to suit the Lord Chancellor's convenience."—(p. 156.)

Referring to earlier Masters in Lunacy he says :

"Traditions of the earlier Masters still linger in the office. The first two Masters—Barlow and Winslow—had long been connected in the lunacy work. Master Barlow (1846–1880) had a long tenure of office. He was the Father of the office, he took great interest in the work and did much to regulate the practice, which under him was substantially the same as the then practice in the Court of Chancery." "It is said that Master Winslow (1846–1859) had peculiar views as to the proper destination of Committees' balances in which the Lord Chancellor did not concur. Master Winslow resigned."

"Master Warren (1859–1877) was more famous as the author of *Ten Thousand a Year* than in any other capacity. It has been said that he drew a good deal of his book—*The Diary of a Late Physician*—from the contents of Affidavits in Lunacy. Unfortunately for the story the book was published before he became a Master."

Of the Board of Control he says :

"As will be seen, the Board of Control is the old Lunacy Commission with a new name and with greatly increased powers and duties. The title is colourless, and was no doubt chosen because of the strong feeling among medical men and others that the word 'lunacy' involves some slur, and should be avoided as far as possible."—(p. 141.)

To us, "Control" suggests that the insane are a special section of the population needing control, and the word conveys no idea that they are sick people requiring, above all, care and treatment by doctors and nurses.

Part IV deals with "Care and Treatment." The provisions of this section of the Lunacy Act are dealt with comprehensively, and in readable form. A chapter discusses the "Liability of Judicial Authority and Others." At the present time Sir Henry Theobald's views on the protection the law affords to medical practitioners will be doubly interesting. After stating that the certifying medical practitioner's immunity from prosecution has not yet been established by law, he goes on to say :

"Different considerations apply to different causes of action. The better opinion appears to be that he cannot be made liable in an action for imprisonment. The imprisonment is not the immediate consequence of his certificate. The act of a third person intervenes, namely, the judicial authority. There is no contractual relation between the practitioner and the lunatic. If, however, the medical practitioner is not protected by the theory of the intervening act of a third party, or if the action is not based upon anything done under the order, the question arises whether the statute imposes any duty upon the medical practitioner towards the lunatic. Is he protected if he acts in good faith, or must he exercise reasonable skill and proper care, or only proper care? The better opinion appears to be that he cannot be sued for want of skill."—(p. 156.)

The chapter on "Places for Care of Lunatics" is very carefully written, and the conflict regarding the abolition or continuance of private institutions tactfully dealt with. Chapter XXIV deals with mental defectives and the Mental Deficiency Act of 1913, and the chapter following with lunacy in the Army, Navy and Air Force.

We cannot continue our quotations indefinitely, but those we have given will allow our readers to form a good idea of the thoroughness with which Theobald treats his subject. We need now to proceed more quickly.

Our author now tackles "Lunacy and the General Law": matters of contracts (including marriage) and the insane; disposition by deed and will; torts (in which he draws attention to Dr. W. G. H. Cook's recent book); crimes and the McNaughton Rules; criminal lunatics and the Criminal Lunatics Act of 1884; offences against the insane; liability to provide for pauper patients (public authorities, various relations); proceedings by and against lunatics (a very interesting subject); Statutes of Limitation and Prescription; chancery jurisdiction over lunatics; effects of the Law and Property Act of 1922 on lunacy; probate and administration; lunacy of the Sovereign and of persons holding Office and positions of trust, etc.

Sir Henry Theobald, by reason of his long and in some respects unique experience of the legal side of lunacy, can be regarded as an authority on these subjects, and the value of his book is much enhanced thereby. The same remark applies to Part VI on "Management and Administration," which concludes his treatise proper. In this latter part is an interesting chapter on "Lunacy Records." Papers relating to lunacy going back to 1604 still exist.

There are one or two matters of special importance just at present which we should like our readers to know how Sir Henry Theobald views them, and this must be our apology for some further quotations.

On the discharge of patients, he says:

"It has sometimes been said that it is easy to procure the confinement of a person as a lunatic, but that it is difficult for him to obtain his discharge. This may have been true during some part of the last century, but neither branch of the proposition can be admitted at the present day. An alleged lunatic is now surrounded by statutory safeguards against improper detention, which err, if they err at all, on the side of favouring personal liberty. On the other hand, institutions for lunatics of every kind are so carefully visited and watched that it is difficult to see what further protection can be given. It is almost impossible that a person can at the present day be improperly placed under care as a lunatic, or that such detention can improperly be continued."—(p. 172.)

An important chapter is that on "Crimes." Theobald recognizes the subject of insanity and crime as a very difficult one, and that the problem has of late years become more difficult by recent developments in the study of mental disorders:

"It is dangerous to lay down general rules on the subject. The safer course is to consider each case as it arises, applying to it all the medical knowledge obtainable, together with the commonsense, learning and legal acumen which the Bench supplies. Law and Medicine must work together; the tendency of the one to

follow the beaten path and to shrink from novel ideas must be enlarged by the knowledge the doctor acquires from the study of mental disease in the asylum, and, on the other hand, the leaning of the medical profession to speculative theories of psychology and doubtful metaphysics must be corrected by the accuracy and sound sense of the law and its interest in protecting the community at large.

"The law develops (apart from statutory interference) through the medium of decided cases. Principles are deduced from decided cases, and gradually, by the arguments of the Bar, the decisions of Judges and the discussions of the learned, a body of law is developed and receives authoritative statement. The law never stands still. It develops with the national growth. This development sustained a rude check in the case of the law of criminal responsibility by the unprecedented desire of the House of Lords for information in connection with the trial of a man called *McNaughton*."—(p. 236.)

He then gives the details of the *McNaughton* case, and what are known as the *McNaughton* Rules. Several pages are devoted to a criticism of the latter.

"One of the principal criticisms made against the rules is that they treat criminal responsibility as a matter of the intelligence only and not of the will. But the question of irresistible impulse was not raised by the House of Lords. The Judges rightly assumed that they were dealing with the case of a free agent—that is to say, a person free from constraint, whether physical or mental, for freedom involves not only freedom from physical constraint, but freedom from mental constraint. If there is irresistible impulse there is no criminal responsibility, but it must be irresistible and be proved to the satisfaction of the jury to be irresistible. Irresistible in this connection obviously does not mean irresistible physical force. It means a mental impulse, the irresistibility of which must be proved, not by a mathematical demonstration, but by such evidence as will satisfy an ordinary reasonable man after hearing medical evidence and cross-examination. It is a matter very difficult of proof, and it is for the jury to decide, subject, of course, to the direction of the Judge.

"Criminal responsibility must be determined by the law and not by medical theory. As Mr. Justice Stephen admirably puts it, the question is: Was there knowledge that the act was wrong and power to abstain from doing it? (vol. ii, p. 183). There it is in a nutshell, and the statement cannot be improved. To decide this question there is no reason to exclude any assistance that medical men can give."—(p. 243.)

"There is, among some medical men, a view that there can be no criminal responsibility if there is unsoundness of mind, or, at least, such unsoundness of mind as would justify a medical man in signing a certificate of insanity under the Act of 1890.

"This is a much more serious position. It is based upon a view of the law which is not the well-established law and not the law as approved by the great majority of the public, including most of the medical profession. It is well settled that a person may be guilty of a crime though he may be a certifiable lunatic. It is a question of fact for a jury whether his lunacy is of such a kind as to affect his responsibility. Is a man who believes himself to be the prophet *Isaiah* to be allowed to commit murder with impunity, though there is no reason to suppose that that prophet had any murderous inclinations? The mere statement of the position carries with it its own refutation.

"If this state of the law is to be altered it must be done by the authority of Parliament. If it is done there can be little doubt that the public will be deprived of valuable safeguards which it now enjoys.

"It is true that the executive which has to deal with the convicted criminal has allowed a practice to grow up which appears to give some approval to the doctrine 'if certifiable, then not criminally liable,' or at any rate not to be punished, but this does not touch the question of legal responsibility as administered in the Courts."—(p. 244.)

We are tempted to linger and make some comments on these extracts, but we regret it is impossible. We may say that the man who believed himself to be the prophet *Isaiah* might be a very

dangerous man for all that. It is the state of mind, in this case probably grandiose and persecutory, which is of supreme importance as regards crime; the outward expression of it might take any form, from the patient believing himself to be Hell's Gate porter to being the Recording Angel, and we have even met, if the patient were to be believed, God's eldest brother.

The Report of the Lord Justice Atkin Committee is then dealt with fairly fully. Referring to the legal recognition of "irresistible impulse," he says :

"It cannot be supposed that any special value is to be attached to the words 'in substance' used in the recommendation. It would have the same meaning if they were omitted, but no doubt they will lead to endless discussion. If it is not sinful it is, at least, a pity 'seeking to mend, to mar a subject that before was well.'"

"It is to be hoped that Parliament will not be asked to try its heavy hand upon so delicate a matter as this, but that it will be left to the common law to develop in accordance with the requirements of the times, without legislative interference. If the common law should prove inadequate, and it is believed that it has not hitherto done so, legislative assistance can be sought."

In his preface the author warns us that the words "lunatic" and "lunacy" will be freely used, since his book deals with lunacy. Such terms, he says, are convenient, concise and hallowed by time. He admits, however, that they should be omitted in documents likely to be seen by the patient, "in order to avoid giving pain." He notes that some years ago the Masters in Lunacy ceased to use the words in legal proceedings. Having conceded this point we are inclined to agree that such considerations do not apply to a treatise addressed to lawyers and those administering the law, except that their use tends to perpetuate the survival of terms around which many members of the public centre superstitions—unmerited and unkind ideas regarding those mentally disordered. He approves of the word "asylum" as being of pleasant sound and ancient associations. We have no prejudice or sentimental view on this point. We look at it from a practical point of view. An institution devoted entirely to the care of the chronic insane could well be called an asylum. A word however with less evil associations in the public mind would be better. But an institution mainly devoted to the cure of the insane with its special staff, special buildings and special administration for this purpose is a hospital, and should be so called.

We have given this book a more than lengthy review because we think the occasion justly warrants it. The reading and studying of it has been both an education and a pleasure. The task was not lightly or hastily undertaken, because we recognize that although the subject Sir Henry Theobald deals with is and has always been of great importance, yet at the present moment, when some people are advocating a complete revolution in our lunacy laws and methods of dealing with the insane, it is of even greater importance.

The public owes much to eminent officers of the State like Sir Henry Theobald, and doubly so when their ripe knowledge and experience gained in the public service can be obtained in the form

of a treatise such as the one under review. Such a work is a fitting epilogue to a distinguished career, but although the author is now retired and unfortunately blind, we would hope that in his case it will not be an epilogue, but rather a prologue, if it were not for the fact that this is not the first of Sir Henry Theobald's writing. We trust, however, that he will be spared for years to come, and that this is not the last occasion we will feel called upon to review something from his pen.

J. R. LORD.

An Introduction to the Study of Mental Disorders. By FRANCIS M. BARNES, jun., M.A., M.D. London: Henry Kimpton, 1923. 2nd edition. Royal 8vo. Pp. vii + 295. Price 18s.

The author does what he sets out to do, very thoroughly, in the pages of this book. The student is not merely introduced to the study of mental disorders as ordinarily taught, but he is given that breadth of view of the subject which is all-important if the knowledge so acquired is to be used to the best advantage.

After chapters devoted to historical matters and methods of study, first place is rightly given to mental hygiene and social psychology, and psychology in relation to medical practice. These when taken together form the platform from which the intending medical practitioner should be taught psychology and mental diseases.

The diagnosis, care, treatment and cure of individual mental disorders is no doubt an important part of medical practice, but the prevention of such disorders and allied conditions and the encouragement and preservation of sound mental health are matters of even greater importance. That these are the ultimate aims and objects of psychological medicine cannot be too firmly impressed on those entering upon the study of this subject. As Dr. Barnes aptly says, "In mental hygiene, as elsewhere in medicine, the greatest good is looked for in prevention."

The other outstanding feature of this book is the remarkable lucidity of the author when dealing with psychological processes, such as consciousness, memory, association and orientation, which often present difficulties to the ordinary student. Indeed, some students never really grasp their meaning. To the latter especially Dr. Barnes's treatment of them will be a revelation.

Under "Treatment" we are glad to see that occupational therapy and industrial mental hygiene are given a prominent position.

Part II of the book deals with the principal forms of mental disorder quite adequately for the author's purposes.

Our view is that this is a most useful book to all students of psychiatry. It is also a work that can be commended to mental hygiene and social workers in every field.

The original edition appeared in 1918. The present edition combines also Dr. Barnes's *Notes on Mental Diseases*, 1919, 3rd edition, 1920.

J. R. LORD.

Papers on Psycho-Analysis. By ERNEST JONES, M.D., M.R.C.P. Lond. London: Baillière, Tindall & Cox, 1923. Royal 8vo. Pp. x + 731. Price 25s. net.

We cannot pretend to review the subject-matter contained in a work of this kind owing to the extent of the field it covers. It comprises a collection of thirty-nine papers (or addresses) by the author, of various dates from 1908 to 1923, which, for the purpose of consecutive reading, are arranged in groups of chapters in the following order: General papers, including an introductory chapter, papers on dreams, papers on treatment, clinical papers, and papers on child-life and education.

Dr. Ernest Jones by this means builds up a work which covers a wide field of psycho-analytic theory and practice in relation to normal psychology, psycho-pathology and psycho-therapy. It is remarkable that the author has only in one instance found it necessary to make any extensive alteration in any one paper, but in this edition five papers have been withdrawn and five substituted, and the remainder revised and brought up to date.

Dr. Ernest Jones is a true disciple of Prof. Freud—indeed this book, practically a life's work, he dedicates to him, and nobody, certainly in this country, is more capable of presenting Freudian teaching in relation to psychological medicine. He preaches no diluted doctrines, but belongs to the orthodox school, and his unique knowledge of the subject entitles him to be always heard and read with respect.

He points out that the study of unconscious mentation is, bit by bit, building up a genetic theory of mind as a whole—a statement about which there can be no doubt. Its materialization in the practice of psychiatry is another matter, but if ever the Freudian school of thought becomes a valuable asset—and some would claim it is already—in the treatment of the psychoses and psychoneuroses, it will be due in no small measure to Dr. Ernest Jones's intense devotion to the subject both experimentally and clinically, and to his lectures and writings, and of which devotion this book is an undoubted evidence.

To those who desire to seek light upon Freudian teaching in relation to psychological medicine in its widest sense we can with confidence recommend these collected papers by Dr. Ernest Jones.

J. R. LORD.

Supernormal Faculties in Man: An Experimental Study. By Dr. EUGENE OSTY. Translated by STANLEY DE BRATH. London: Methuen & Co., 1923. Pp. xi + 245. Price 15s. net.

Mankind is, and has ever been, so prone, for the most part, to belief in the marvellous that the sceptic is usually looked upon askance. Even an attitude of mild philosophic doubt has not been without its dangers in the past. Rigid conformity with preposterous opinions has been supported by such persuasive arguments

as the stake and the faggot, the thumb-screw and the rack. Scepticism must needs be allied with its own share of obstinacy and fanaticism to refuse lip-service to the silliest superstition, or to hold out against such convincing proofs! To others—equally sceptical, but less obstinate—the position adopted by Erasmus is easily to be understood. No wonder he could write ironically in "Praise of Folly." There is never any lack of material for such an essay.

As a result of prolonged training, civilized man is now able to assimilate all sorts of strange doctrines without much difficulty, and to reconcile contradictions with complete satisfaction. So we see those who are sceptical in many matters yet giving credence to the most unlikely suppositions. Nowhere is this seen more markedly than in the domain of psychology. To many the term "mind" connotes a vague mysterious "something"—which is found to be on investigation perilously near "nothing"! But if we accept the theory of a hypothetical mind—in contra-distinction to the application of the term to cerebral activity—there is nothing too amazing to be postulated in regard to its potentialities. Dr. Eugene Osty in this extremely interesting book takes us far into the empyrean, whence we can gaze upon the Freudians swarming in the depths of the unconscious! We have got a long way beyond the realms of sense—lest there should be the least suspicion of ambiguity I hasten to add that I refer to "sensation"—for he tells us of "supernormal faculties . . . of means of cognition other than those through the normal channels of sensation." He expressly states that he is not dealing with knowledge obtained by means of "cryptesthesia," for this "signifies a hidden sense, and therefore implies a sensory system registering vibrations unperceived by the normal senses. This may be correct for telepathy, vision at a distance, discovery of hidden water-springs, etc., for we naturally imagine these phenomena as resulting from sensations. But when a percipient reveals an event that happened yesterday or a hundred years ago, still more when that event has not yet taken place, it is no longer possible to suppose that his faculty is registering vibrations of any kind." This faculty, "possessed by certain persons of revealing the sequences of individual lives independently of normal intelligence, of normal sensorial information, and also of the unavoidable obstacles which time and space place in the way of ordinary perceptions," has been called by Dr. Osty "metagnomy." Dr. Osty has conducted his investigations elaborately and extensively, and the results which he has had are certainly amazing. He gives examples of autoscopy—that is, the power some individuals have of taking momentary cognizance of the exterior form of the body as if they saw it before them (exterior autoscopy), and of the interior of their mind as if they saw into it (internal autoscopy). It is, he observes, "chiefly under hypnosis and in mental affections causing increased subconscious psychic activity that the most curious phenomena of supernormal cognition of the organism have been observed." One of Dr. Sollier's patients saw and described "her veins, heart, lungs, bronchia, down to the pulmonary vesicles, intestines, ovaries, Fallopian tubes, uterus

and appendages," etc. She had not, it is stated, any " (normal) knowledge of the outer forms of these organs nor of their structure, nor of the ovaries and the brain, of which she described the microscopic structure." Some observers have noted the same peculiar faculty, especially in hysterical subjects and under hypnosis. Certain individuals were able to describe disease processes taking place in their bodies. But still more remarkable phenomena are recorded. There is, for example, the fairly familiar one in which the sensitive person can read visiting-cards and printed papers or describe photographs by means of touching the objects with the finger-tips, or by applying them to the forehead or to the pit of the stomach—the eyes, of course, being blindfolded. Other percipients are said to transcend this. They are able " to take cognizance of the whole content of a life." One lady gave all the details of Dr. Osty's doings during the " previous ten months"—what awful possibilities this suggests!

It would take too much space to give a detailed description of the interesting phenomena described by Dr. Osty as a result of his own researches, or as arising from the experiments of other observers. What he states goes so far beyond ordinary scientific belief that one may be pardoned a moderate degree of scepticism, or, at any rate, a suspension of judgment. It is only right to note that Dr. Osty does not adopt a pontifical and uncompromising attitude, but very reasonably says that though his conclusions " should appear as the outcome of exact demonstration," it is with the reservation that " their soundness should be verified by repetition of the experimental investigations from which they are derived." Even the results of such experiments must, however, be weighed carefully. Not only must the person who conducts the experiments endeavour to free himself as much as possible from the " will to believe," but there is also to be remembered the subjective nature of the information derived from the person exhibiting the " metagnostic " faculty. The cleverness exhibited by professional " thought-readers," spiritualistic mediums, and various minor " prophets," show how much can be achieved by nimble wits, and how easily the simple-minded scientist may be deceived. In addition to these tricksters there are the neuropathic subjects, hysterics and others, who do exhibit abnormal mental symptoms; but here again one hesitates to admit that the abnormal is " supernormal."

The translation appears to be well done, but the same cannot be said of the proof-reading. Mr. De Brath uses " ultimate " as a verb. What is the authority for this?

It occurred to me that it would be interesting to have the opinion of my friend, Mr. William Marriott, who is well known for the work he has done in exposing the frauds and trickery of *soi-disants* mediums.

In the course of his letter he says: " I am not greatly impressed. . . . In spite of these seeming marvels I am left sceptical. My scepticism is not decreased when I find reliance placed on such a man as Bert Reese. This man was a conjurer pure and simple. The case quoted, which has had almost as much publicity as Katie

King, when analysed resolves itself into a good setting for one of the oldest of this class of trick. . . . The deceiving of the average scientist is so absurdly easy. And when you have a man like Zöllner with a theory to play with the marvel is that they are not supplied with more. Ochorowicz was very painstaking, but I know for a fact that all his reported marvels were due to trickery. Schrenck-Notzing is another case of a scientist who has not so much been gulled, as gulled himself. His case is on a par with Dr. Crawford's. . . . It seems to me that the point to be stressed is the absolute necessity for a single person being found who has any supernormal power. There are hundreds with these alleged powers, but that is not quite the same thing. The existence of any of this power has yet to be proved. Until it is, all the rest is simply red herrings dragged over the trail." H. J. NORMAN.

Opening Doors. By JOHN THOMSON, M.D. Edinburgh: Oliver & Boyd, 1923. Crown 8vo. Pp. 20. Price: Cloth 1s. 6d.; paper, 6d.

In this brochure the author has put in plain and entirely non-technical language a number of simple rules by which mothers can discern in their children the earliest signs of retarded mental development.

The instructions are given in such a manner that they will easily be understood even by those of poor education, and at the same time irrelevant matter is excluded, so that the whole can be mastered in a minimum of time.

Methods of home treatment for the main types of mental deficient are described, and the mother is advised as to when medical aid should be summoned.

Those interested in "child welfare" should find this small book extremely useful as a handy method of giving advice to parents. W. MOODIE.

Colonic and Duodenal Lavage. By Capt. J. T. AINSLIE WALKER. London: H. K. Lewis & Co. Ltd., 1923. Crown 8vo. Pp. 12. Illustrations 2. Price 1s.

The author advocates the use of dimol as an intestinal antiseptic, and suggests that it be employed in colonic lavage, following the Plombières treatment, and also in duodenal lavage by the œso-phageal tube.

He gives exact descriptions of the methods employed in each case, and ends his monograph with laboratory findings, which support his contention that dimol is a most efficient agent for the destruction of bacteria in the intestine. W. MOODIE.

A Manual of Psychotherapy. By HENRY YELLOWLEES, O.B.E., M.D., F.R.C.P.S.Glasg. London: A. C. Black, Ltd., 1923. Crown 8vo. Pp. vii + 247. Price 10s. 6d.

This excellent manual contains three sections. The first deals with the principles underlying psycho-therapy, the second with the methods of practising it, and the third describes the main morbid states in which it has been found useful.

The scope of the work is, therefore, wide, and the author has contrived to condense a great deal of information into its various chapters.

The first section gives a very lucid and logical *résumé* of modern psychological theory, such subjects as the unconscious mind, conflict, repression, etc., being dealt with in a manner which does not (as unfortunately happens in many works on modern psychology) arouse the resistance of the reader who is tackling them for the first time. Concrete expressions and examples are used as far as possible, and technical terms are introduced only where absolutely necessary.

In the second section psychotherapeutic methods are described. Suggestion, hypnotism, dream analysis and psycho-analysis are discussed in turn, and there is an interesting chapter on the theories and practice of auto-suggestion. The procedure in each method is given in detail, and there are many hints which will be of use even to the experienced.

The last section gives a very succinct account of the subdivision and classification of the neuroses and psycho-neuroses, and ends with some interesting clinical notes of typical cases.

The author has succeeded in presenting the salient points of his subject in such a readable form that he has made its principles appear simple and its procedures easy, and it is probable that the beginner will find success not quite so easy of attainment as this manual would lead him to expect; its optimistic outlook should, however, carry him through his initial difficulties, and in meeting them he will derive much guidance from its pages.

W. MOODIE.

Theories of Memory. By BEATRICE EDGELL, M.A., Ph.D. Oxford: Clarendon Press, 1924. Crown 8vo. Pp. 174. Price 7s. 6d.

Dr. Edgell is one of those constitutionally interrogative writers whose recurrent notes of interrogation do not necessarily denote a laudable curiosity concerning the facts of nature. Beginning with Hering's classical paper "on memory as a universal function of organized matter" (or rather Butler's excerpts therefrom), she proceeds to review—unfavourably—the biological, behaviourist, new rationalist and Bergsonian conceptions of memory by way of introduction to the statement of her own views in the sixth and last chapter. Her chief concern here is not memory but a "memory-image." It is true that on p. 145 "memory is cognition of something known before," but this is so incidental a remark that it can hardly

be the gist of the author's contribution to psychology promised on the publisher's wrapper. In truth there is no such contribution, as the final sentences of the book reveal—"This essay only purports to be a discussion of theories. It will have served its turn if it has shown how far-reaching in its consequences may be this question which lies in the heart of the memory problem, the nature of a memory image." We leave the chapter with more than a suspicion that it is just one more phrase among the many. What interests Dr. Edgell chiefly is words and the harmonizing of their meanings one with another. The biological interest in memory functions is not merely a verbal interest, and in view of Dr. Edgell's misleading if not contemptuous treatment of that interest and its results, a professed biologist may be permitted some observations on the more explicitly expository parts of the book. Dr. Edgell rightly observes that Hering made the problem of memory biological. Even so, his mistakes—if they were mistakes, *e.g.* his "material vestiges" of sensation remaining in the nervous system after stimulation—are fifty-four years old. The only other biological writers quoted are Butler (1877), Semon (1911), Jennings (1906), Loeb, and Lloyd Morgan. Allusion is made to the monumental work of Pavlov on conditioned reflexes in dogs without reference to its source, and is followed by a discussion which may appear profound to the metaphysical mind, but loses all point in the light of the experimental facts. The writer inquires what relation *R* has to *Q* if *PQ* is the original and *RQ* the substituted conditioned reflex, *P* being the food stimulus and *R* the stimulus originating in the bowel which contained the food. She observes that "unless *R* be brought into the same system with *P* and *Q* its present relation to *Q* remains a mystery." It is brought into the same system—the dog—and still remains a mystery for the present. Jennings's use of "experience" in the sentence "the different physiological conditions are determined largely by the history of the individual worm, so that in this sense its behaviour may be said to depend on its *experience*," was sufficiently clear to biologists and did *not* involve "sentience." Other questions which are "crucial" for Dr. Edgell might be answered if space permitted, *e.g.*, what we mean by the organism as a whole. The fact would remain that the author's presentation of the biological treatment of memory is fragmentary and misleading. The old dispute—mechanism *versus* vitalism—is dying, if not dead, so far as biology is concerned. The biological writers who have ventured to suggest *how* present action is linked with past experience, either through the instrumentality of the central nervous system or in any other way, are few, and their remarks by no means constitute biology's contribution to the solution of the problems of mental function. Head, whose recent work is so suggestive in psychological directions, is ignored by Dr. Edgell, perhaps because his refusal to force cerebral functions into the merely verbal moulds which our crude concepts are so prone to supply is not conformable with the ideals of academic psychology.

TUDOR JONES.

Part III.—Epitome of Current Literature.

1. Neurology.

Heteræsthesia in Spinal Concussion [L'Hétéresthésie dans la Commotion Directe de la Moelle Epinière]. (L'Encéphale, April, 1922.) Lhermitte and Cornil.

Heteræsthesia is the term applied to that peculiar disturbance of sensation, hyperalgesic or dysæsthetic, which in rare cases of spinal concussion affects the region below that corresponding to the focus of injury. Its distribution is not uniform, different root-areas showing a special and distinct degree of sensibility.

In the case described by the writers, a sergeant, aged 25, was wounded by a bullet in the region of the second dorsal vertebra, paraplegia resulting immediately. Four days later he began to feel severe burning pains in the legs on the slightest touch. Both pains and paralysis steadily lessened, and the latter disappeared. Six months after the wound a light touch on the legs still evoked a sensation of burning. Twenty months later the dysæsthetic zones corresponded exactly to the skin areas supplied by the twelfth dorsal, upper three lumbar and part of the second sacral nerves. After a further six months heteræsthesia persisted in the root-area of the second right sacral, while the sensation produced by stroking in the right upper lumbar areas lasted longer than in the corresponding region of the left side.

The possible pathogeny is discussed, but it is pointed out that the subject is rather of clinical interest, and that the occurrence of heteræsthesia may be regarded as a sign of spinal concussion convincing in value in a case of doubtful diagnosis.

C. H. FENNELL.

Partial Continuous Epilepsy, with Especial Reference to that Produced by Microscopic Cortical Lesions. (Arch. of Neur. and Psychiat., May, 1924.) Wilson and Winkelman.

Partial continuous epilepsy is that form of the disease in which during conscious intervals between the major fits continuous muscular twitchings appear at different places. It is due to an irritative lesion of the motor cortex, usually gross, but sometimes microscopic. The writers describe three cases of the latter variety, and point out that operation is here contra-indicated, whereas in the cases due to tumour operation is always in order.

In the first two, with diagnosis of subdural hæmorrhage and tumour respectively, craniotomy was performed, but revealed only encephalitis of unknown ætiology. In each case death rapidly ensued. The third case proved at necropsy to be one of encephalitis due to diffused carcinoma.

That partial continuous epilepsy may be due to microscopic

lesions and not to tumour, abscess or subdural or extradural hæmorrhage is important because the pathological study of two of these cases showed many unaffected cells, and therefore a chance of some degree of recovery.

C. H. FENNELL.

A Very Chronic and Benign Form of Wilson's Disease [Über eine sehr chronische und gutartige Form der Wilsonschen Krankheit]. (Zeitschr. für die ges. Neur. und Psychiat., March, 1924.) Curschmann, H.

In this short paper the author draws attention to the fact that it is now becoming habitual to assume that all cases found showing motor disorders referable to the pallido-striate system are sequelæ of lethargic encephalitis; but just as the paralysis agitans syndrome occurs without such external causation, so also it is found that cases of true Wilson's disease and of the similar Westphal-Strümpell pseudo-sclerosis may be mistaken for encephalitic sequelæ which closely resemble them, even—in one case described by Westphal and Sioli—to the extent of having an accompanying cirrhosis of the liver.

He describes a case exemplifying the fact that the symptomatology of the Westphal-Wilson syndrome has a wider range than that originally described, in that some cases exist which run a benign and chronic course, with incomplete development of symptoms and without leading to a fatal issue.

This case began in childhood with a slight clumsiness of leg movements, and at the age of 9 his handwriting was slow and unsteady. These defects persisted with very slight increase through adolescence and adult life, so that finally he took to a typewriter, and later became rather clumsy at this also. There was no history of liver disorder or jaundice. The family history was negative except for a slight clumsiness in walking observed in his father.

When examined at the age of 40 he was found to have a rather blank expression and lack of facial play of emotion, but full range of voluntary facial movement. His speech was slurred and slow, but neither scanning nor monotonous. No ocular disturbance, but a congenital bilateral cataract. No difficulty in chewing or swallowing. Occasional lateral tremor of the head. Movements of limbs slow, unsteady, with some tremor, which increased on voluntary movement; increased muscle tone and antagonist fixation contracture in biceps and supinator longus as described by Strümpell. No Parkinsonian gait or posture; no pro- or retropulsion; gait ataxic and stamping. Sensation normal. The liver was increased in size, a hand's breadth below the costal margin, hard, but smooth; spleen enlarged and hard. Reflexes normal. No mental change but a slight neurasthenic reaction. No bile-pigments in the urine. Blood-count showed an increase of lymphocytes typical of cirrhosis of the liver. No liver-function tests were made.

The symptoms point indisputably to Wilson's disease of a type described in recent years and more chronic and benign than those originally described, and lacking mental derangement; several

such cases described by other authors are quoted. The author regards these as one end of the series, of which the other end is formed by the fulminating cases of Wilson leading rapidly to death, and by the original Westphal-Strümpell cases with rapid development of dementia, convulsions, and contractures, and he considers that all degrees between these two extremes may be found.

M. R. BARKAS.

2. *Ætiology of Mental Disorders.*

An Attempt at Finding a Foundation for a Connection between Elementary Psycho-pathological Symptoms and Alterations in the Physico-chemical State of the Body. Lecture given at the Stuttgart Medical Society, November, 1922 [Versuch einer Begründung von Zusammenhängen zwischen elementaren psycho-pathologischen Symptomen und physikalisch-chemischen Zustandsveränderungen des Körpers]. (Zeitschr. für die ges. Neur. und Psychiat., February, 1923.) Fauser, A.

This lecture, given to general practitioners, is an attempt to correlate general medicine and psychiatry, and to suggest how a more complete understanding of clinical physiology may throw light on problems of mental disease.

The author holds that the relation between endogenic and exogenic factors in the psychoses is far from simple, and that the result of any mental or other trauma upon any individual depends on the constitution of that individual, and that disease forms are determined by that constitution. He pleads for research directed to finding possible anomalies of the constitution from the standpoint of physical chemistry and physiology, and believes that this, rather than psychology, is the science which will bring a solution of the problems of psychiatry.

Among these he takes first such symptoms of insanity as disorders of movement and behaviour, of sensation, of emotion and of sleep. Histopathology has so far thrown little light on these, and the probability is that they are due to chemical changes affecting the nervous system.

He sets out from two propositions, and suggests that research might well be directed towards establishing their truth. The first is that both mental and physical disturbances, such as are found in insanity, may be caused by disorders in the normal regulation of osmotic pressure and ionic concentration of the body-fluids, and in that of the body temperature, upon the maintenance of which the chemical reactions of the tissues depend. The second is that such disorders may be due to defects of the apparatus which maintains this regulation, probably some part of the central nervous system, so that it maintains an abnormal level instead of a normal one. Such a defect may be the innately imperfect element predisposing an individual to a psychosis.

He discusses at some length the ways in which these disorders

may make themselves manifest and the widespread mental and physical changes thus produced; alterations of metabolism and physiological regulation go hand-in-hand with abnormalities of motility and of emotion, and he gives a table suggesting some parallelisms of this kind.

(1) Regulation of metabolism: Thirst is produced by a hyper-tonic condition of body-fluids, craving for salts by a hypotonic one. A feeling of gasping for breath and anxiety is associated with disturbance of the hydrogen-ion concentration, feelings of lassitude result from defective oxidation, while excessive motility is produced by lowering of heat production.

(2) Utilization of metabolic products: Hunger, often for specific substances, is produced by their lack; satiation by excessive intake. Fatigue results when the utilization of energy-producing foods is defective, while good utilization of available material produces a keenness for activity.

In mental cases we see how these regulations fail; an emaciated patient who should eat ravenously and rest will have the excessive activity proper to the well-nourished, or will refuse food; a cold melancholic will lie inert and stuporose, instead of warming himself by activity. In such cases the apparatus of regulation is working defectively and does not respond to the stimuli in a normal way.

This disorder may be produced in two ways. In some cases the regulating apparatus may be innately defective, and fail with little or no external causation. In others there may be such changes in the metabolic processes that the regulating apparatus, which was at first normal and able to bring about adjustment, ultimately fails, and itself becomes secondarily damaged by the disordered metabolism it has been unable to correct. Many cases of encephalitis suggest that here the infective process has been responsible for the damage to the regulating centres, and the same may hold for other organic lesions. Here it is probable that lesions of the basal grey matter of the brain may form the primary disturbance, and the late sequelæ result from consequent derangement of metabolism and regulation.

The relation of psychoses to ductless gland disorders falls into line with these views, since these glands are an important part of the mechanism by means of which the regulation of the body chemistry is carried out.

The author goes into some detail about the extent to which abnormalities of physical state react upon the mental and emotional life, how paræsthesiæ of all senses play a part in the formation of delusions and hallucinations; but in his partisan attitude of antagonism towards psychological investigation in the psychoses he neglects the other half of the picture—the extent to which emotional and mental stimuli can also bring about physical changes and disorders of metabolism. There can be little doubt that both lines of research will help us to a more complete understanding of insanity, and that neither should be left out of consideration.

M. R. BARKAS.

Focal Infection and Mental Disease. (Amer. Journ. Psychiat., October, 1923.) Kopeloff, v., and Kirby, G. H.

The authors state that this investigation was stimulated by the claims of Cotton, and therefore it has been necessary painstakingly to scrutinize his work. One hundred and twenty cases were taken, 58 forming the series which were operated on and focal infection removed, and 62 cases were taken as controls.

Generally speaking the cases were balanced as to types of mental disorder, duration and probable prognosis, and also as to types of infection, such as that of the teeth, the tonsils or the cervix. The duration of the cases both before and after admission varied from a few weeks to a number of years. Full details of all these points are given in a number of tables. The types chosen consisted of 33 and 32 cases of dementia præcox in the selected cases and the controls respectively, 20 and 25 cases of manic-depressive psychosis and 5 each miscellaneous.

Twenty-two of the 58 operated cases improved or recovered, 15 of these being in the manic-depressive group, 8 of which were recoveries.

Of these 22 cases 6 improved before treatment commenced, 4 cases improved within a month of operation, 9 cases improved in one to two months and 3 cases later.

The figures in the controls very closely resembled those of the operated cases.

The authors give a detailed criticism of the bacteriological technique employed by Cotton and of the deductions drawn therefrom, and much of this appears to be well justified.

The conclusions drawn are that in the psychoses chosen the removal of focal infection did not result in a higher percentage of improvements or recoveries than in the cases in which this was not done. Again, all recoveries obtained in the operated cases have been forecasted, and no case recovered in which a poor prognosis had been given. In one case, however, an unexpected improvement occurred. A critical study of the methods used by Cotton for establishing focal infection proved them unsatisfactory for teeth, stomach, lower intestine and cervix.

Finally, while it is desirable to remove proved focal infection where found, it has not been shown that focal infection is the ætiological factor in the functional psychoses.

A. A. W. PETRIE.

3. Clinical Psychiatry.

Some Röntgenologic Observations of Gastro-Intestinal Conditions Associated with Mental Disorders. (Amer. Journ. of Psychiat., April, 1924.) Henry, G. W.

Details of the findings and technique employed in barium meal examinations of 100 unselected cases from the Bloomingdale Mental Hospital are summarized. Only 25 per cent. had gastrointestinal symptoms, quite slight except in one or two. X-ray

examinations were made over a period of six days in each case. The results showed that in manic states the position of the viscera tends to be high (normal or above normal) and tone and motility are increased, whereas in depressed states the position is low and there is longer retention and hypotonus. Recent dementia præcox showed more marked changes than the chronic who may be supposed to have made some adjustment. Dementia præcox in general shows higher position, hypertonus but diminished motility. In all psychoses with paranoid trend there is some hypomotility and hypotonus of sigmoid and rectum, which is interesting in relation to possible anal eroticism. Psychoneurotics appear to be prone to hypertonus and hypomotility. One patient was observed in both manic and depressed states, and the findings agreed with those of the manic and depressed groups.

In a discussion of this paper *White* speaks of hypertonus as representing conflict. Hypotonus (*e.g.*, the long-standing dementia præcox cases and the depressed patients) indicates that the patient has "given up the fight" for the time being. The hypotonus and retention of contents of the lower bowel in involution melancholia is in agreement with psycho-analytic theories according to *White*, as these patients have a large component of hate which, in suicidal cases, leads to turning one aspect of the personality against another.

MARJORIE E. FRANKLIN.

Psychic Manifestations in Migraine. (*Amer. Journ. of Psychiat.*, April, 1924.) *Moersch, F. P.*

Among 1,000 cases of migraine in the Mayo Clinic, psychic symptoms were noted in 150, but the real incidence is probably greater, as the author has to rely on history or short observation. The disturbances are usually mild and transitory, but more serious conditions, sometimes even suicide, are occasionally recorded. The commonest form is mild mental and physical depression with retardation, sometimes combined with anxious foreboding. In the prodromal period this may occur alone or be preceded by a transient state of hypomania and exhilaration. Visual, olfactory, and sensory aura sometimes occur. During the attack there may be divers types of psychic disturbance, the commonest being somnolence, sometimes leading to clouding of consciousness, confusion, hallucinosis or delirium. Unconsciousness may be associated with migraine and does not necessarily indicate epilepsy. Psychic disturbances in this phase are usually relieved by vomiting and sleep. Other symptoms at the height of the attack include anxiety and terror, auditory, visual, occasionally olfactory hallucinations, obsessive ideas, etc. Transient manias and changes in personality may be associated with the attack or occur as psychic equivalents. Personality changes include moroseness, impulsiveness, compulsions and pathological stealing and other periodic asocial acts. Other equivalents include excitements, depression, confusion, automatism and dissociated states. The author alludes to an association with periodic drinking and the existence of a "migrainous constitution."

He discusses the close relationship between migraine and epilepsy, which may be different manifestations of the same underlying disturbances, although migraine does not lead to progressive deterioration. Although migraine is frequently combined with hysteria and other psycho-neuroses and these react on each other, the author does not consider it a hysteric manifestation. Ætiology and therapy are not discussed, but the author alludes to the importance of heredity, and states that among 1,000 cases only one showed definite endocrine disturbance, although menstrual disturbance was common.

MARJORIE E. FRANKLIN.

Affective Disorders following Acute Epidemic Encephalitis in Children. (Amer. Journ. of Psychiat., April, 1924.) Rhein, J. H. W., and Ebaugh, F. A.

The authors draw attention to the not infrequent occurrence of apparently unmotivated suicidal attempts in post-encephalitic children during transient depressions which, unlike those of manic-depressive psychosis, are usually unaccompanied by inhibition of thought or ideas of self-reproach. Manic reaction with increased psycho-motor activity also occurs. The psychic changes may be related to the previous make-up of the child. Behaviour disorders sometimes lead to asocial acts and medico-legal difficulties. The authors emphasize the need for safeguarding children while suffering from affective disorders as sequelæ to epidemic encephalitis, and the value of "rest cure" in treatment. Case reports are given.

MARJORIE E. FRANKLIN.

An Analysis of Recoverable "Dementia Præcox" Reactions. (Amer. Journ. of Psychiat., April, 1924.) Strecker, E. A., and Willey, G. F.

The object of the study was to uncover factors which might have modified prognosis in cases thought to be of malignant type but ultimately recovered; and conversely, to elucidate those factors which give to a benign psychosis a malignant colouring. The 25 cases reviewed were diagnosed as dementia præcox by majority vote at staff conferences at the Pennsylvania Hospital, Department for Mental and Nervous Diseases. Many showed symptomatology of classical type, while some seemed more debatable, but opinions differ as to whether ultimate recovery invalidates a diagnosis of dementia præcox and prognosis rather than diagnosis is stressed in the paper. Of 1,000 consecutive admissions 187 were classified as dementia præcox, and of these 25 recovered. The criterion of recovery was "apparently permanent and complete restoration to normality"—cases with previous or subsequent attacks or of partial readjustment were excluded. The period since recovery was from 7 months to 8 years, with an average of 5 years, and the duration of the psychosis from one month to 5 years, with an average of 11.5 months. Consideration was confined to manifest symptoms, personality, family and personal history, situation, etc., and "interpretations which involved a probing of the unconscious

were avoided," but in the discussion Dr. White emphasized the assistance which interpretation of symbolism may give in prognosis.

Race and heredity were prognostically of indirect importance only, *e.g.*, an erroneous evaluation of affect is apt to be made in an alien subject, while imitation of a relative may modify symptoms.

In considering pre-psychotic *personality*, "intrinsic" seclusiveness is of more serious import than a retirement which is a fairly logical, perhaps helpful, defence reaction against a genuinely inimical environment. Again, certain grave symptoms may be regarded more hopefully when they are clearly and manifestly an exaggeration of previous characteristics or a recurrence of early forms of behaviour; *e.g.*, an interest in mysticism, or a pseudo-catatonia which was a regression to the reactions of a stubborn child against opposition. In the case of a deaf-mute, *somatic deprivation* may have caused the psychosis to assume an unduly unfavourable aspect. A "*precipitating situation*" of real significance, *e.g.*, an illegitimate pregnancy, the death of a relative, etc., when its component factors are reflected in the content of the psychosis, improves the prognosis.

The authors point out that there is a period just before the onset of actual psychosis when inhibitions are weakened, and *occurrences* of that time may be transferred into the subsequent psychotic content and give a misleading appearance of malignancy. For example, in one case the reading of detective stories and in another the words of a charlatan spiritualist supplied extraneous material for delusions, and were incorporated practically unchanged. The *onset* of the psychoses was apparently abrupt in 60 *per cent.* of the series.

In considering *psychotic symptoms* special emphasis is laid on a real diminution of affect or disharmony between the expression of affect and the idea content of thought, but it is acknowledged that these are difficult to estimate accurately. Errors may, in particular, be made in judging patients accustomed even in health to hide their emotions and in those of alien race. *Toxic* psychoses may simulate dementia præcox closely. Points of importance are clouding of consciousness, however slight, a history of somatic disturbances and clinical signs of toxicity. A gain in weight accompanied by mental improvement is favourable, whereas physical without psychical improvement is of unfavourable prognosis for the psychosis.

Catatonia was pronounced in 56 *per cent.* of the cases, but the authors consider it no criterion of malignancy, and it may occur in many organic and functional conditions. Stupor, not always of Hoch's benign type, was present in 28 *per cent.* of the series, but is not thought of prognostic significance.

Descriptions of each case, with discussions, are given. The authors conclude that careful study of symptoms and antecedent factors should reduce the margin of prognostic error.

MARJORIE E. FRANKLIN.

4. Treatment.

President's Address. (Arch. of Occupat. Ther., December, 1923.)
Kidner, T. B.

The Association was founded seven years ago to "study and advance curative occupations for invalids and convalescents; to gather news of progress in occupational therapy and to use such knowledge for the common good; to encourage original research, to effect co-operation among occupational therapy societies and with other agencies of rehabilitation." It holds an annual conference, gives information and advice to hospitals and other authorities, supplies workers, and finds positions for its members and issues publications. Special committees are at present engaged on, among other subjects, the questions of a minimum standard for training and of record forms. The president looks forward to development of research, which is hampered from lack of funds. He warns against making the work too commercial. It is not necessarily the patient whose articles are the most saleable who needs the treatment most. Authorities should realize that even the economic benefit of shortening the hospital stay greatly exceeds the value of productions. He deprecates exaggerated claims in relation to vocational training, though the work may be a useful preliminary to this.

It is in the hospitals for mental and nervous cases that the value of the therapy has been especially recognized, but "it seems difficult of belief to-day, but there are many large hospitals for the insane in this country (U.S.A.) which are yet without this important form of treatment." The General Federation of Women's Clubs and other organizations have helped to create interest. The work is extending among tuberculous patients, but progress is slow in general and orthopædic hospitals and among physically handicapped children. It has been increasingly used by physicians in private practice.

MARJORIE E. FRANKLIN.

Occupational Therapy in Kalamazoo State Hospital. (Arch. of Occupat. Ther., December, 1923.) Scott, W. A.

One director and nine instructors work with an average of 350 patients daily. There is an "occupational building" with four rooms and there are smaller rooms in the main hospital for patients unsuitable for the former. Those who work best alone are visited in the wards by teachers. The occupation rooms are cheerful and homelike. The lowest class, for about 20 deteriorated præcox cases, meets each morning for simple kindergarten handicrafts and in the afternoon for games and songs. There is a parallel class for disturbed, noisy cases. In the occupational building there are four graded classes, the last including weaving, pottery, clay modelling, lace work, toy making, etc. The patients work up to five hours a day. In the summer classes are held out of doors. Many are, of course, engaged in industrial work in the hospital and grounds. There is a special

class for twenty-five ex-service men, who make furniture. Many patients, men and women, have garden plots, and prizes are given. The department undertakes the amusements, games and entertainments, and there is an orchestra directed by and composed of patients. Classes are taken for walks and for nature-study expeditions, and the point of view of a re-educational school kept in mind as far as possible.

The results of seven years' experience are encouraging. In curable cases recovery is hastened, while institutional life becomes more tolerable and less wasteful for those who must remain. Expense is saved by utilizing waste material for handicrafts.

MARJORIE E. FRANKLIN.

5. Pathology.

Acidophile Degeneration in Dementia Præcox. (Amer. Journ. of Psychiat., April, 1924.) Kelly, O. F.

The condition discussed in this paper was described by Dr. Adeline Gourd in 1920, and was observed in dementia præcox cases in sections of the cortex stained by the Alzheimer-Mann methylene blue and yellow eosin method. The nucleus in acidophile degeneration has an affinity for eosin, loses its definite outline and nucleolus, and becomes a homogeneous mass of reddish instead of blue colour. Frequently the affected cells must be carefully searched for. Among ten cases at Danvers State Hospital diagnosed as dementia præcox the author found the change in seven, and in these seven the diagnosis had been agreed. The remaining three were of doubtful diagnosis, and one of them was found *post-mortem* to have gross organic cerebral disease. Of thirty-two cases with diagnosis other than dementia præcox only two showed acidophile degeneration, and of these one—diagnosed as “imbecile”—appeared by the case-sheets to be probably dementia præcox. This was the only case with acidophile changes in the cerebellum. The other was admitted with advanced neuro-syphilis, and no concurrent disorder was considered. Pulmonary tuberculosis occurred in members of each group. Divers methods of fixation were used, without materially affecting the result. The author found acidophile degeneration in the frontal, precentral, post-central and temporal areas, and in one case in the Purkinjé cells, but has not found it elsewhere. In general this distribution corresponds to that of the lesions described by others. It is limited (except for the case mentioned, where it was, however, chiefly frontal and parietal) to the layers of small and medium pyramidal cells. The distribution is discussed in relation to theories of functional localization. The changes were most intense in a woman who died during acute catatonia from broncho-pneumonia and meningitis.

MARJORIE E. FRANKLIN.

Studies in the Excretion of Phosphoric Acid in Urine in the Psychoses
[*Studien über die Entleerung von Phosphorsäure mit dem Harne bei Psychosen*]. (*Zeitschr. für die gez. Neur. und Psychiat.*, April, 1924.) *Tsuchiya, S.*

In this paper the author describes his work on the estimation of the diurnal phosphoric acid in the urine, which he determined by precipitation with uranium nitrate. He states on the authority of Votaire that of the total thus found about two-thirds are excreted as potassium phosphate and one-third as phosphates of sodium, magnesium and calcium, while between 1 and 5 per cent. is in organic combination.

In his series of 10 normal people the average daily excretion was 1.5 to 5.6 gm. phosphoric acid, which agrees with observations by others. In 11 cases of neurasthenia the average excretion was 2.4 times that of the normals; 2 cases had normal values, while of the rest the lowest was equal to the highest normal, and many were very high—the highest being 13.3 gm. This increase is mainly in the calcium phosphate, and is greatest in the cases where sleep was poor. This is ascribed by Klemperer to an increased acidity of the gastric secretion, which leads to greater absorption of calcium as chloride, with diminished excretion by the bowel.

In 18 manic-depressive cases there was an average increase of more than twice the normal, both in excited and depressed cases, and in those convalescing; the highest values were 24 gm. in an improving maniac and 9.9 in an improving melancholic, while a number of both were within normal limits.

In 5 epileptics specimens examined before and shortly after an attack, the lowest values were before and the highest shortly after a fit, while the average was about twice the normal.

In 20 cases of dementia præcox, 9 hebephrenics, not very advanced cases, and 2 dementia paranoides showed values on the average slightly lower than normal; in quiet catatonics the average was 1.3 times the normal, while in excited ones it was about twice normal.

In dementia paralytica 16 cases gave an average of 1.6 times the normal, while in 3 who died within twenty-four hours after the specimens were taken there were enormous values—37, 27 and 17 gm.

M. R. BARKAS.

Dementia Præcox: Some Preliminary Observations on Brains from Carefully Selected Cases and a Consideration of Certain Sources of Error. (*Amer. Journ. Psychiat.*, January, 1924.) *Dunlap, Charles B.*

In this paper the author challenges a number of the findings which have been described in the brains of cases of dementia præcox. He deals especially with a number of points which have been described by reliable investigators, and among those whose work is challenged are such famous workers as Alzheimer, Nissl, Mott and Vogt.

He selected eight cases of dementia præcox and five controls.

The criteria for the præcox brains were as follows: That the diagnosis of the case was undoubted, that they were not over 40 years of age, and that they must have died from acute illness and not from a wasting disease, and further that the autopsies must have been done immediately after death. The controls included two cases of acute arsenical poisoning and a "bootlegger" who died shortly after being shot through the lung, and also a nurse who died from acute peritonitis. He admitted in the discussion that the history of the controls was meagre, but stated that there was no suggestion of any psychosis among them.

In preparing the material for examination the selected cases and the controls were treated simultaneously and in the same manner. He did not find any increase in the neuroglia, their nuclei or fibres, and after a careful count of the nerve-cells of the outer layers of the frontal cortex he did not find any difference between the psychotic cases and the controls.

The nerve-cells of the "bootlegger" were dark and shrunken, with poorly defined nuclei, in fact, resembling the changes described as chronic organic changes in dementia præcox, and the nerve-cells in cases of arsenical poisoning also showed similar changes.

The nerve-cells of the nurse were of good shape, stained well, and the nuclei were well defined, but two of the cases of dementia præcox showed equally satisfactory nerve-cells. He believes unknown processes at or just before death cause these variations. He does not consider dark-staining sclerotic cells are characteristic of this psychosis. Other conditions, such as the scattering of the cell cytoplasm, he believes are artefacts, and that such changes, if real, would be associated with compensatory neurogliosis. He also failed to find the acidophile staining of the nucleoli described by Sir F. Mott, but admits that he did not employ similar staining methods. In regard to the lipid increase described by Cotton, the author found in four cases an equal amount of lipid to that found in the controls. The other four cases showed an excess of lipid, but not to the extent noted by Cotton, and he also failed to find the degenerations of the axis cylinders reported by that observer.

The conclusions drawn by the author from this preliminary investigation are that he has not found even a suspicion of consistent organic brain disease as a basis for the psychosis. Any changes found are secondary, and not essentially different from the nerve-cell changes found in non-psychotic cases. The article is illustrated with microphotographs.

A. A. W. PETRIE.

6. Sociology.

A Study of Certain Auto-Erotic Practices. (*Mental Hygiene*, July, 1924.) Davis, Katherine Bement.

This paper is of the first importance to all students of sex manifestations. It has long been supposed that masturbation is as common (Havelock Ellis and others say more common) among women as among men. But owing to sex repressions, and to the

amazing nonsense which has been written and preached on the subject, we have little definite knowledge as to the numerical incidence among men, and practically no knowledge as regards women. The paper now under notice is the first instalment of a research on this matter.

Dr. Davis attempted the elucidation of the subject in the following way: Applications for co-operation were sent to 10,000 unmarried women, whose names were taken from the graduates' lists of the leading American women's colleges. Those who had graduated in 1917, or earlier, were applied to in order to insure the inclusion only of those women who had some experience of life outside college walls. A questionnaire, to be answered anonymously, was sent to those who had signified their willingness to reply, and 1,183 replies were received. Only 46 of the women who replied had never been engaged in some gainful occupation. The employments of the others ranged over the whole area of the avocations open to educated women, far the largest group being teachers. It is interesting to note that only 121 failed to find their present employment "absorbing and satisfactory." Of 1,000 married women, the results obtained from whom will form the subject of a future paper, only 116 found their married lives not wholly satisfactory. The proportions are so similar that Dr. Davis remarks, "We are tempted to ask whether about this proportion of womankind has a personality make-up which prevents easy adjustment to conditions."

Great care was taken to impress upon the women that, whatever had been their auto-erotic experiences, they were not abnormal or uncommon. Masturbation was very strictly defined as "auto-erotic activity carried to the point of orgasm." More than 60 *per cent.* admitted the practice at some time during their lives, about half of this percentage stating that they had now ceased the practice. Many students will regard the definition as too strict and "classical." And it would seem clear that a far larger percentage would have admitted the practice had the definition been more elastic.

About 42 *per cent.* commenced the practice in childhood, and about 19 *per cent.* during the years of puberty. The percentages of those who had accidentally discovered the practice, who had been taught it by another person, and who had deliberately undertaken it in adult life, were roughly 60, 30 and 10 respectively. About 32 *per cent.* of those who had ceased the practice had done so from fear of the supposed ill-results. On the other hand, about 18 *per cent.* definitely reported good results upon themselves, but the number who replied to this particular question is too small to allow of any certain conclusions being drawn. More than 59 *per cent.* of those practising believed the practice to be harmful. There are most interesting remarks upon the connection of masturbation with sex and with other problems, and with other sex practices of various kinds.

There is one grave defect in the paper. The fantasies which accompany the auto-erotic act are dealt with only in a very superficial manner. These fantasies are always present, may be of the

most varied character, and are of the utmost practical importance. It is to be hoped that Dr. Davis, in any future extension of this admirable research, will endeavour to obtain some information on this head. Such facts have a great bearing on the extended domain of sex, and on its relationship to the whole of life.

M. HAMBLIN SMITH.

7. Mental Hospital Administration.

- (1) *Some Problems of Hospital Personnel.* (*Amer. Journ. Psychiat.*, October, 1923.) Heyman, M. B.
- (2) *The New Saint Elizabeth's Hospital.* (*Ibid.*, October, 1923.) White, W. A.

The first of these papers was read at the annual meeting of the American Psychiatric Association, and the ensuing discussion indicates that the problems in regard to staff are, if anything, more acute there than in this country, and that in many cases we have advanced further in meeting the desire of the staff for better conditions. There is apparently a great lack of suitable applicants, partly due to more restricted immigration. Difficulties in obtaining medical staff are influenced by the fact that the medical graduations are only 35 *per cent.* of those prevailing before the war. The problem is a large one, as there are about 7,000 persons employed in the New York State Hospitals. The principal points militating against suitable applicants are the intrinsic unpopularity of the work, and the fact that the standard of housing, food and facilities for recreation is below that provided by the large industrial corporations. A twelve hours' day is worked in a number of the hospitals, although Dr. Wm. A. White stated that at his hospital he had introduced the eight hours' day with satisfactory results. The author and other speakers emphasized the need for adequate commutation allowances to enable a considerable number of the personnel to live out—a condition which has been conceded to a fair extent in this country. The necessity was also emphasized for stirring up public opinion, and inducing the controlling organizations to take legislative and administrative action, which seems to indicate that in America, as elsewhere, professional opinion in favour of reform is generally in advance of that of the lay controlling bodies.

In the second paper Dr. Wm. A. White describes the organization of the work at St. Elizabeth's Hospital, Washington. The number of patients is about 4,000 and the medical staff number about 50. He expresses an emphatic belief in large institutions, adducing, among other reasons, the advantage that the best of the various services is spread over a large number of cases, which enables the maintenance rate to be kept within reasonable limits. The hospital is divided into a number of sections, each controlled by a senior assistant, whose duties are mainly administrative; these officers work in association with two clinical directors. In addition there

are departments of internal medicine, clinical psychiatry and laboratories, each under a chief or director. The department of internal medicine deals with physical illness, and is subdivided into medical and surgical—acute and chronic—and is associated with other activities, such as X-rays, etc.

The advantage of the system appears to be that a number of experienced specialized medical officers work at purely professional problems and are relieved from administration, and the result is seen in the number of papers and researches which he mentions is in preparation or recently published. In addition a course was conducted for those preparing to work with the Veterans' Bureau. This course appears to resemble those conducted in this country for diplomas in psychological medicine.

A. A. W. PETRIE.

Part IV.—Notes and News.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE usual Quarterly Meeting of the Association was held at the Rooms of the Medical Society of London, 11, Chandos Street, W. 1, on Thursday, November 20, 1924, the President (Dr. M. J. Nolan) in the Chair.

The Council and Committees met earlier in the day.

MINUTES.

The minutes of the last meeting, having already appeared in the Journal, were taken as read. They were unanimously approved and signed by the Chairman.

OBITUARY.

The late Sir Frederick Needham, M.D.

THE PRESIDENT said he was sorry that the first duty falling upon him was to refer to the death of two Commissioners of the Board of Control. In Sir Frederick Needham the Association had lost its *doyen*, and at one time a very active member and a past President. He retired not very long ago and had succeeded in living to a good ripe age.

The late Arthur Hill Trevor, Esq., B.A.

The decease of Mr. Trevor, also a Commissioner of the Board of Control, happened with such suddenness that it was very difficult for them to realize that he had actually passed away. Members were well aware how intimately he had associated himself with the work of the Association, and had endeared himself to all. Members would no doubt show their respect and sympathy in the usual way.

Those present, in silence, signified their deep respect by rising in their places.

MATTERS ARISING OUT OF THE COUNCIL MEETING.

THE PRESIDENT said the appointment of examiners for the Mental Nursing Certificate of the General Nursing Council of England and Wales had been considered by the Council, and it had been unanimously agreed that the names of three doctors and one matron should be submitted, together with some alternative names. The General Nursing Council had the duty of appointing the examiners, and he did not anticipate that any difficulty would arise, and it was satisfactory to have reached a solution on a subject which had occasioned much anxiety.

The **PRESIDENT** also announced that the next Quarterly Meeting would be held in Edinburgh.

The **PRESIDENT** said members no doubt were aware that steps had been taken to obtain for the Association a Royal Charter. The matter was still in the hands of a sub-committee, who had been working diligently on the subject. So much progress had been made, however, that to-day the Council had considered a draft Charter. Much more needed to be done, but it was hoped that at their next meeting an outline of the Charter would be submitted for consideration. It might not be within the recollection of all present that an unsuccessful effort in this direction was made some years ago. Since that failure, however, the Association had grown, both in influence and numbers, and the sub-committee dealing with the matter had heard to-day that this time there was a better prospect of success.

The **PRESIDENT** announced that the Gaskill Prize had been awarded to Dr. Mary Barkas, and it was his agreeable duty to make the presentation.

Dr. Barkas, who was received with much applause, then approached the Chair, and was presented by the President with the medal and cheque.

The **PRESIDENT** said the Acting Registrar's Assistant had been called upon to carry out a great deal of extra work during the interim following Dr. Miller's death, and the Council considered that a grant of £20 was due to him.

This the meeting agreed to.

ELECTION OF CANDIDATES AS ORDINARY MEMBERS.

The **PRESIDENT** appointed Dr. F. R. P. Taylor and Dr. O. G. Connell scrutineers of the ballot. The candidates were all elected as follows:

PICKWORTH, FREDERICK ALFRED, B.Sc., M.B., B.S., M.R.C.S., L.R.C.P. (Lond.), A.I.C. (by examination), Ph.C., Pathologist to Joint Board of Research for Mental Diseases, City and University of Birmingham; Hollymoor Mental Hospital, Northfield, Birmingham.

Proposed by Sir Frederick Mott, and Drs. T. C. Graves and C. W. Forsyth.
O'REILLY, JAMES JOSEPH, M.B., B.Ch.Belf., Assistant Medical Officer, Dorset County Mental Hospital, Herrison, Dorchester.

Proposed by Drs. G. E. Peachell, P. W. Bedford and Herbert Smith.
EDDISON, H. WILFRED, M.A.Camb., M.R.C.S., L.R.C.P.Lond., D.P.M., Assistant Medical Officer, London County Mental Hospital, Banstead, Surrey; 33, Mount Nod Road, Streatham Hill, S.W. 16.

Proposed by Drs. Percy C. Spark, W. M. Ruthven and R. Worth.
BUSHE, CHARLES KENDAL, O.B.E., B.A., M.D.Dubl., Surgeon-Commander R.N., Surgeon-Commander-in-Charge, Royal Naval Hospital, Great Yarmouth, Norfolk.

Proposed by Drs. John Carswell, R. Worth and G. Warwick Smith.
HENSMAN, HENRY SAUMAREZ, L.M.&S.Madras, M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, Government Mental Hospital, Kilpauk, Madras, S. India.

Proposed by Sir Frederick Mott, and Drs. T. C. Graves and C. W. Forsyth.
BROWN, BASIL WILLIAM, M.B., B.S.Lond., D.P.M., Assistant Medical Officer, The Priory, Roehampton, S.W. 15.

Proposed by Drs. J. Chambers, R. H. Cole and J. C. Woods.
CRAIG, ROY NEVILLE, M.D., B.S.Durh., D.P.M., "Heath Court," Barton Road, Torquay.

Proposed by Drs. R. H. Cole, J. G. Porter-Phillips and Thomas Beaton.

THE ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER: SUBMISSION OF EVIDENCE.

Dr. R. H. COLE (Chairman of the Parliamentary Committee) said that the Memorandum on this subject, which had been circulated to each member of the Association, had that morning been revised by the Parliamentary Committee and approved by the Council. He now moved its adoption by this general meeting together with the amendments he would serially set out in the course of his remarks.

The Report of the English Lunacy Legislation Sub-Committee, 1918, reported

in the Journal of January, 1919, and mentioned in this Memorandum, being so recent, were still effectual, and represented the views of members generally.

On the second page it was proposed to amend paragraph 1, first sentence, so as to read: "In preparing evidence for the Royal Commission it has been deemed desirable to deal particularly with principles involved in the actual reception, treatment, care and discharge of patients." That paragraph implied that the recommendations and proposals embodied in the 1918 report, with the present supplementary recommendations, should form a *précis* of the evidence to be given on behalf of the Association.

It had been decided that the next paragraph should read "a very considerable proportion" in lieu of "a large proportion." Members held different views as to whether mental disorders which were certifiable could be dealt with on a voluntary basis in a large or in a small proportion of cases.

He hoped all would agree with the next paragraph.

He then said he would now make some brief comments on the thirty-three recommendations and what additions or alterations were recommended.

1. It was felt that the Lord Chancellor, holding as he did an ancient and dignified position in lunacy affairs, should be included.

2. The idea here was, that having to do with voluntary patients it was not right to use the word "control." Moreover, many committees of asylums rather resented the idea of the control of a central authority being emphasized. They were unanimous that there should be an increase in the medical personnel. As regards legal commissioners, there was the matter of complaints and detention. There was a difference of opinion as to whether visitations to mental hospitals should be undertaken by medical commissioners only as in Scotland. Personally he was not sure that complaints by patients should not be investigated by a barrister instead of by a medical man. He might be in a minority in this matter, but he felt that certified patients required assistance from the legal as well as from the medical profession. There was a strong feeling that the remuneration and retiring allowance of the Commissioners should be improved. The Board of Control was constituted in 1913, under the Mental Deficiency Act, and many changes were then made. The original Commissioners appointed in 1845 received a salary of £1,500 a year; the same salary was now being paid. Surely such a responsible appointment ought to be better paid, and it was right that the Association should voice its opinion on this matter. Many Civil Service appointments were considerably better paid, and at the present salary he did not think the best men would be attracted in future to the Commissionership.

3. This recommendation it was thought should commence—"That the management," and end with "of a local authority."

4. He was aware some members would consider that the statutory committee should have no right to enter voluntary clinics, hospital clinics, etc., even though rate-aided, but he thought their tact in not interfering where they were not needed might be relied on.

5. Here the only amendment proposed was the insertion of the word "special" before "medical." Otherwise it would look as if the rates were required to be used to help ordinary medical and nursing training. In effect this recommendation abolished the "pauper" class of medical patients—a matter the Association had always pressed for. The recommendation of a Government grant had been made so that there would be some supervision and control by the Board of Health over the local authorities. At present the Board of Control had no means of making its recommendations effective.

6. This puts more explicitly the Association's views that mental patients should not be pauperized because of their infirmity.

7. It was hoped that if this materialized there would be a considerable growth of voluntary treatment of mental complaints.

8. It was thought that all patients requiring certification should be examined by two medical practitioners.

9. Here the relieving officer was not specified, because it was hoped that the Poor Law would shortly be divorced from lunacy affairs.

10. This was the practice in some European countries. Some considered that the present urgency order for private patients was not long enough, namely, seven days. The Committee considered that if there could be a provisional order which would have effect for three days, and then if necessary be

prolonged, to twenty-eight days as recommended in 14, much certification would be avoided, and that many patients would subsequently remain under treatment as voluntary patients.

11. The provisional order to be used more intensively than the urgency order.

12. The provisional order for all patients whether in mental hospitals, registered hospitals, licenced houses or in single care.

13. In the provisional order it was not proposed to say that the patient was of unsound mind, but merely that he was a proper person for temporary care, observation and treatment.

14. This brought it into line with the present three-day order of the relieving officer. This order of the relieving officer was often used without any medical report whatever. In Scotland an emergency order of a poor person required a certificate, in proper form, of a medical practitioner.

15. Many patients would be discharged without certification.

16. With regard to "any near relative afflicted with insanity," it was under consideration as to whether this should be deleted. The information was often incorrect, and the onus would be on the medical officer to obtain accurate information on the point.

17. In the second line the words "to be" should be added, making it read "Person alleged to be of unsound mind." There was a discussion in Committee as to whether "separately from any other practitioner" should be deleted. Under the Lunacy Act, 1890, although one could discuss a case with the other examiner, one must obtain the facts by separate examination. It was recommended that the reasons for detention should be put on the certificate, because there were cases of mental disorder which need not of necessity be detained.

18. This had been deleted by the Parliamentary Committee after a good deal of discussion, and would remain deleted unless some members pressed for its retention.

19. The Committee considered "detained" as well as "received" should be inserted.

20. It was thought desirable that the justice should see the patient, because most of the members felt it was prejudicial to the patient to be seen by a magistrate when he was in an institution. The magistrate should see the patient and satisfy himself that the statements on the certificate were genuine. And he should be specially appointed. It was an important and special duty, and not all justices were fitted for it. More justices specially appointed would be required.

21. This might mean more work for mental hospital committees and justices, but it was felt that as the original order expired, the authority for detaining the patient should not be thrown solely on the medical officer of the institution as in practice it was now. It was recommended that the latest date for signature should be the end of the existing quarter to suit the convenience of the visiting justices and committees, who would need to see all the patients who still needed detention. This procedure expressed the view of the Association that there should be a separate authority always for detention, and emphasized the predominance of the doctors' medico-administrative duties.

22. Some thought that the recommendation was asking for trouble, but the Committee saw no reason why discharged patients should not see these documents, as well as their original orders of detention.

23. There had been ambiguity in the minds of certain legal authorities on these matters, but in the Court of Appeal at the present time there was no ambiguity. But there was yet another Court to be applied to, and until that decision was arrived at, there might be ambiguity as to when patients could be taken back to their institutions.

24. The Parliamentary Committee thought it necessary to add at the end of this recommendation: "To defer the matter of the decision of this Committee to its next meeting, which shall have the power to override the action of the petitioner," to prevent the order lapsing in the case of the relatives attempting to discharge a dangerous or otherwise unsuitable patient.

25. This is the necessary corollary of 21 and 24.

26 and 27 called for no comment.

28. The Mental After-care Association was the parent body of the kind and had many branches, and would have more if it had the means. It had done and was doing magnificent work, and should be encouraged by the Statutory Committee by contribution. The Committee felt that after-care was best undertaken under

the supervision of one central body, but they included other bodies helping in this matter, though it was only temporarily.

29. It was felt that some Poor Law infirmaries had not proper provision for receiving mental cases, and the Committee thought that they should be approved by the Board of Control before being allowed to do so.

30. This was an instance of the medical man having power to detain a patient against his will. The Committee disagree with this. A justice has already seen the patient and should sign a provisional order.

31. Members might not be aware that mental cases in Poor Law institutions were not notifiable. He might emphasize here that it was proposed that the mental wards of the Poor Law infirmaries approved of by the Board of Mental Health should be supervised by the statutory committee, who should also pay for their maintenance. There were mental patients who did not need the more expensively equipped hospitals.

32. It was obvious that some senile cases had to be certified. But, on the other hand, there were senile cases which need not be sent to ordinary mental hospitals as occurred now.

33. Altogether it was true there had been no successful action by a patient against a medical man with regard to recovery of damages since 1890, yet many had been harassed by threatened actions. If a practitioner gave his honest opinion, he should be protected from the beginning. How it was to be done was a matter for the lawyers to decide.

With regard to the *précis*, it was proposed that the report of 1918 be included, and that a preamble be prepared showing the composition of the Association and its work. They had been asked to tender some evidence as to lunacy law in foreign countries. That was rather a large matter, but the Committee has it in hand, and information from foreign countries was already being received.

In conclusion it was proposed that the witnesses who would appear before the Royal Commission for the Association should be representatives of county and registered mental hospitals and private institutions, and physicians associated with general hospitals or infirmaries or in actual practice as mental specialists.

He moved the adoption of the Report. (Applause.)

Dr. MENZIES said that in seconding the adoption of this Report of the Subcommittee he only wished to refer to Recommendation 25, line 3. He thought the wrong word had crept in—the word “justice” should be “judicial authority.”

Dr. COLE accepted this correction.

Dr. W. H. COUPLAND said he understood that the terms of reference of the Royal Commission restricted the inquiry to operations of the Lunacy Act, and if so he thought that the words “and mental defect” in the first paragraph of page 3 should be deleted. It was not desirable that mental defect should again be associated with the Lunacy Act. The Central Association for Mental Welfare had stated that it was highly undesirable that questions of mental defect should be brought before this Royal Commission if it was possible to keep them out. As an actual fact the Mental Deficiency Act, 1913, did need revision, but he did not think this was the time for it.

Dr. F. D. TURNER expressed his agreement with Dr. Coupland's remarks. The Memorandum said the Committee had met the British Medical Association, and had correspondence with various members; had any of the heads of the Mental Deficiency institutions been asked whether they agreed that one Committee should preside over two different types of institution? Those engaged in mental deficiency work expected the Association to respect their wishes and opinions. Before 1886 all the mental deficiency institutions were under the Lunacy Act, and in order to get a child of five years into one of the special institutions it was necessary to deal with it under that Act, which was ridiculous. The aims and objects of the two branches were different. (Dissent.) He objected to this unwilling marriage of lunacy and mental deficiency. It was the ambition of mental institutions to become mental hospitals, but the mental deficiency institutions would rather be regarded as educational institutions.

Dr. HELEN A. BOYLE remarked that not only did the memorandum propose to marry mental diseases and mental deficiency, but also commit bigamy by taking other and unwilling brides. They were the voluntary special hospitals, clinics, etc., for voluntary patients. She thought it a great error, and could not fail to

have disastrous results as regards the treatment of early cases without certification.

Lt.-Col. J. R. LORD, interposing, said that was definitely not so. Nowhere in the Memorandum would she find support for her statement.

Dr. A. A. W. PETRIE said he took it that the Association would put positive proposals for the treatment of insanity to the Royal Commission. There were many questions implied in this Memorandum; one of them was the establishment of clearing houses for recent cases. Were Poor Law infirmaries to act as such? Was that the best method? It was as regards the methods of dealing with early cases that changes were most required. If these infirmaries were to deal with mental cases in their earlier stages, what authority was it intended should have charge of the mental sections? Were the guardians to act, or were such wards to be put under the proposed statutory committee? As regards paragraph 3, he thought that a nice argument was likely to ensue, because it raised the question of the future position in lunacy matters of the Metropolitan Asylums Board and the London County Council. The whole question of treatment of early cases stood in need of being defined, and when Dr. Cole said the Committee were dealing not merely with this Memorandum, he took it he meant that they would crystallize a number of suggestions as to what to recommend to the Lunacy Commission on this aspect of their inquiry. Mention was made of clinics for the treatment of early cases, and he assumed the Association would make positive and concrete recommendations on the matter to the Royal Commission.

Another point raised was that of the treatment, within or without the walls of the present institutions, of non-volitional acute cases. Would positive recommendations be made on this matter too? He believed the Royal Commission would wish to have such recommendations, and it would interest the members of the Association to know exactly what recommendations the Sub-Committee were intending to put forward in its name.

The Sub-Committee said in the Memorandum: "The Committee notes with satisfaction that an increasing number of medical officers are granted study-leave, and obtain diplomas in psychological medicine," etc. This was a great chance to place members of the mental specialty on the same footing as the Public Health service. The latter had greatly improved their positions, and were correspondingly better paid. A medical officer of health for a large area received £2,000 a year, whereas he understood that even a commissioner of the Board of Control only received £1,500. The Diploma in Psychological Medicine should be made in all respects the parallel of the D.P.H. and be registrable. The effort should be made now, as there might not be another Royal Commission on Lunacy for many years.

Dr. A. N. BOYCORR said that in country districts the county council, under the Mental Deficiency Act, provided the money; therefore the nucleus of the Statutory Committee set up by Recommendation 3 would be a statutory committee of the County Council, and so would be the body which ordinarily would be looking after the mental defectives in the area. It seemed a strong reason for leaving Recommendation 3 as it stood.

Dr. E. S. PASMORE said that at Croydon Borough there were two committees appointed by the same authority, namely, the Mental Deficiency Committee and the Lunacy Visiting Committee. He saw no advantage in severing mental deficiency from lunacy matters even if it were legally possible. (Hear, hear.)

Dr. G. DOUGLAS McRAE pointed out that mental deficiency was the disorder with which this Association dealt; it included mental disease, and the latter could justly be considered only a branch of mental deficiency. (Laughter.)

Dr. J. FRANCIS DIXON said he was himself cognizant, some years ago, of the desirability of preventing the marriage of mental deficiency administration with that of lunacy; and when the matter came up in his district he was asked whether he would like to be the Medical Officer to the Mental Deficiency Committee. He declined it. He did so on the grounds which had already been mentioned in this discussion; he said that mental deficiency was not in his line. He understood that the meaning of the passing of the Mental Deficiency Act was that cases of mental deficiency should be dealt with apart from lunacy.

Dr. BEDFORD PIERCE said he thought the statutory committee would be a larger and more important body than the Committee now dealing with mental institutions. In York it was the business of the Mental Deficiency Committee,

which had a number of co-opted members. The larger body dealt with mental deficiency, and the smaller body dealt with lunacy affairs only. He thought that recommendation to be submitted meant that the Association wished the whole subject of mental health to be in the hands of a representative body appointed by a statutory authority. It did not imply that the institutions were all to be managed by the same committee. And there was no reason why various institutions should not be independent; they could be dealt with by sub-committees of the larger body. He thought that was a sufficient answer to the question raised by Dr. Coupland.

Dr. W. F. MENZIES said that Dr. Bedford Pierce had answered most of the objections to the Recommendations 3 and 4 which the committee envisaged. The Statutory Committee would consist of members of the Mental Hospital Committee, members of the Mental Deficiency Committee, members of the Public Health Committee, and members of the Educational Committee, with the addition of representatives of the After-Care Associations, almoners and hospital visitors, etc. It would also include, he hoped, health visitors of the Infant Welfare Centre, and representatives of other bodies actually engaged in furthering mental hygiene.

Dr. COLE pointed out that the Mental Deficiency Act, 1913, was passed because the Idiots' Act was not considered to be effective. The former Act was required for feeble-minded cases which could not be dealt with under the Lunacy Act. There were plenty of patients under the Lunacy Act who were mental defectives, either as idiots or as persons of unsound mind. Sir Bryan Donkin asked whether the Committee had considered the codifying of the two Acts, which that gentleman pressed upon the former Royal Commission and nearly succeeded. The present was not an attempt to codify the Acts; it merely meant that there would be one statutory committee for both. There could be sub-committees for each Act, visiting committees for institutions or for any other mental health purpose. The Board of Mental Health would visit all these institutions as necessary, being the central authority. He asked whether it was not better to have one statutory committee. It was true that lunacy practitioners did not necessarily know much of the procedure in mental deficiency, but mental diseases and mental deficiency were part of the great subject of psychiatry, and he had heard no valid reason why they should be divorced. There was much mental defect at the basis of the psychoses.

Dr. COUPLAND, in further remarks, said if it was clear that the terms of reference of the Royal Commission were to the Lunacy Act only, then he still thought the words he had objected to should not go in.

The PRESIDENT said there was the broader point of view, the mental health of the people, and what was mental defect to-day might be lunacy to-morrow. It was important to recognize that the Medico-Psychological Association dealt with this problem as a whole.

Dr. COUPLAND said he was content with having expressed his views, which he felt sure would be remembered when evidence was being given.

Col. GOODALL said the Royal Commission would be inclined to look at these matters from the legal standpoint, as had been done in the past. The opportunity should be taken by the Association to insist that the work with which the commissioners in Lunacy were concerned was primarily medical, as was the case also with members of this Association, and that the medical side of it should be enhanced. He had himself been medical superintendent at one institution ten years, and at another sixteen years, and he had always worked in the greatest concord with commissioners, both legal and medical. But he felt there should be more weight given to medical ideals in this matter than at present existed. At the present time—largely, no doubt, owing to shortness of personnel—a legal commissioner alone went round some of the institutions. He suggested that at the statutory visits made to all institutions, both public and private, one at least of the commissioners should be a medical commissioner, and that visits should not be made by a legal commissioner alone. He did not see how a legal commissioner could do justice to medical matters. Sometimes legal commissioners dealt with things which were not connected with the law, but had everything to do with nursing and medicine. He, the speaker, felt that the status of the medical commissioner ought to be enhanced. When Sir Thomas Clifford Allbutt was on the Board, before going to Cambridge, he did enormous good in helping younger men by his inquiries and taking an interest in what they were doing. Dr. Sydney Coupland also did much

good in a similar way. The appointments, he thought, should be broadened, and he did not think the Royal Commission would become aware of these things unless it was told by a medical body. Therefore, to meet the suggestion, he would say that, in making appointments to the medical side of the Commission, it was desirable to take into consideration not only experience in mental disorders and their administration, but also experience in general medicine and status in the medical profession.

Dr. E. MAPOTHER said he had never been quite clear as to the proposed management of observation wards in the infirmaries, or whatever was going to replace them. He gathered that, in some general way, such would be under the control of the statutory committee, but would they remain, for practical purposes, under the management of the guardians? Were the staff to be employed and paid by the guardians, or were they to become part of a general scheme under the County Council? He referred especially to London. He regarded this matter as very important.

Another point, as Dr. Petrie pointed out, was the need for crystallization in regard to certain matters. Definite proposals for the amendment of the Lunacy Act and lunacy procedure had been made, but in regard to early treatment, which was also within the reference of this Royal Commission, what had been done was to give a general approval to the Report of the English Lunacy Legislation Sub-Committee, and subsequently to the Mental Treatment Bill, as, in the main, embodying the recommendations contained in that report. He agreed with the Report, but the Mental Treatment Bill did not come near to embodying its recommendations. He said in Committee, and took the opportunity of emphasizing it at that meeting, that whoever gave evidence on behalf of the Association should be prepared to take definite and specific exception to some of the provisions in that Bill. The Association's attitude on that subject needed to be carefully stated before the Commission. He did not think the Committee had had time, so far, to do it. The Royal Commission would consider the two questions separately, *i.e.*, existing law and practice on one hand and treatment without certification on the other. He did not know whether it was proposed that this Association should give evidence separately concerning those two divisions. They were fully prepared to give evidence on existing law and practice, and he thought that more time should be given to the more important question, namely, treatment of early cases, and definite proposals formulated.

Dr. HELEN BOYLE said that in her view it was inadvisable that the proposed clinics for early treatment, in connection with general hospitals, should be placed under the Board of Control even if it changed its name. Neither of the previous memoranda from the Association had suggested this course, nor did it seem necessary, for it was not proposed that there should be compulsory detention in the clinics, as the former report of the English Lunacy Legislation Sub-Committee, 1918, accepted by the present Committee, says: "It is thought that the special character which it is hoped will attach to these clinics will be more certainly secured if no formal powers of detention therein on the ground of mental disease are asked for. . . . By keeping the proposed clinics free from any formal powers of detention they will be given distinction in fact as well as in name from the existing institutions." Also, "The Committee is of opinion that a large proportion of mental cases should be dealt with on a voluntary basis."

It seemed to her that here came the parting of the ways. Either the general hospital will accept extension of this work to include efficient treatment of these patients (who are received inevitably in any case), and make a complete and effective provision for them in a suitable department under medical practitioners with experience, or it will refuse; in which case there is little doubt that provision of treatment—a reform long over-due and demanded by the country—will have to be undertaken by the mental hospitals.

This would, in her opinion, be a disaster, for it is surely desired to bring mental disorder back into the fold of general medicine, and it is in the general hospital that the really early cases can be found. The modicum of early mental patients who are self-conscious enough to diagnose their own cases truly, and then to be willing to admit the source of the mischief and to label themselves mental, will probably always be small, and even if the staff of the general hospital wished to send them on to another institution (which most general hospitals are reluctant to do), they would probably refuse to go.

Moreover, while both departments are in the same institution, there is friendly chat over any case which may have been overlooked in any one department for too long before passing on. This is one of the most important bits of education and propaganda on this subject.

The general hospital has a real fear of the difficulty of having any such department. It is hard for it to realize that cases of early mental disorder need not be violent nor insane, and that there is a number at present unrecognized in every out-patient department.

A recommendation that this work should be under the Board of Control leads to an entire misunderstanding by the general hospital and the public. If the Ministry of Health were named instead, and the wording used were the same as that arranging for the supervision of venereal disease clinics or tuberculosis, of which supervision the hospitals have experience, it would be far wiser and less alarming.

Lt.-Col. J. R. LORD, referring to Dr. Helen Boyle's remarks, said that when a public authority extended monetary support to an institution not wholly supported out of public funds, it was generally recognized that it had the right to take a share in its management. As to the extent of this share, it depended upon the amount contributed. Recommendation 4 only referred to rate-aided hospitals, clinics, etc., for mental patients. A clinic for mental disorders not rate-supported or rate-aided would be outside the control of the local statutory committee, though it might come under the inspection of the Board of Mental Health according to Recommendation 1. He doubted it, however, if such a clinic rejected certifiable cases and limited its activities to voluntary, border-line, or purely functional or neurological cases. If, under some future Act of Parliament that clinic decided to take certifiable or acute non-volitional cases, he had no doubt it would need to conform with any rules the Act would give the Board of Control power to make. Still, even then, that clinic would be free from all interference of the local statutory committee so long as it remained non-rate-aided or non-rate-supported. He contemplated a statutory committee organized on very broad lines, one something like that he had already advocated as an area mental health advisory committee before the Conference on Lunacy. He hoped that on the statutory committee seats would be found for representatives of every activity in the sphere of mental health. Thus a general hospital with mental wards, a mental clinic, a syndicate of mental homes, etc., would all, he hoped, have representatives on the local statutory committee, and also local practitioners specializing in psychiatry. Dr. Helen Boyle need not have the slightest apprehension that the memorandum then being considered would prevent the establishment of the mental clinics she had so long and so ably advocated. Her work in that direction was recognized as pioneer work in this country and highly valued, and the Lady Chichester Hospital at Hove, with which she was so closely associated, showed what fine work could be done in this direction.

Turning to Dr. Petrie's and Dr. Mapother's remarks, he said that it must be recognized that the memorandum this Committee had prepared had been of necessity drawn on broad lines. It enunciated principles and ideals rather than administrative details. These latter, as far as existing lunacy practice was concerned, had been very thoroughly discussed, and their witnesses would feel fully equipped to answer any questions that might be put to them. He thought, too, that they were fully alive to the importance of the second part of the Commission's reference; indeed, it was also dealt with as regards certain aspects in some of these recommendations in addition to the twelve in the Report of 1918. The Committee would need to meet again, and the delegates no doubt would obtain definite instructions in greater detail on the points raised by Dr. Goodall, Dr. Petrie and others.

He saw no reason why the meeting should not now adopt the Memorandum. He ventured to think it was worthy of the Association. A great feature of it was that it drew attention to the necessity of dissociating the doctor from all machinery which ordered detention and emphasized the medico-administrative side of his duties. The law and some outside authority would detain the patient and the doctor treat him. This was an important matter. Too long had medical superintendents been looked upon as gaolers rather than doctors. (Applause.)

Dr. J. CARSWELL said it was obvious that no adequate discussion of so complicated a matter, put before the meeting in thirty-three articles, could possibly be

completed within a couple of hours. Therefore he refrained from bringing forward any single matter, because there were so many to which he wished to refer. Undoubtedly it was of vast importance to the community that cases of insanity should receive early treatment; also that certain types should receive treatment without certification. There was also the question of selecting the suitable authority, and notably as to whether the Poor Law should still be used at that very important stage. He hoped he was not wrong in voting that the recommendations should be generally approved, and at the same time holding himself free to say, if called upon, what he thought of certain of them.

The CHAIRMAN then put the motion to the meeting and declared it carried.

Owing to the lateness of the hour the paper by Dr. G. R. A. de Montjoie Rudolph was received but not read or discussed (*vide p. 30*).

This terminated the meeting.

SOUTH-EASTERN DIVISION.

THE AUTUMN MEETING of the South-Eastern Division was held on Wednesday, October 8, 1924, at Peckham House, Peckham, S.E. 15, by the kind invitation of Dr. F. R. King, the Superintendent.

There were 36 members present. Among visitors present were Rev. J. S. Luscombe and Messrs. W. H. Gattie and T. Burton Miller.

Members were shown round the Hospital and grounds, and then entertained to lunch, at the conclusion of which Lord SANDHURST proposed a vote of thanks to Dr. King, which was carried with acclamation. Dr. KING replied.

The meeting was held at 2.30 p.m., and Dr. Chambers took the chair.

The minutes of the last meeting were taken as read and confirmed, and signed by the Chairman.

The following candidate for election as an ordinary member was duly balloted for and elected:

DORIS ODLUM, M.A.Oxon., M.R.C.S., L.R.C.P.Lond., House Physician, Lady Chichester Hospital, Hove, Sussex.

Proposed by Drs. Helen Boyle, M. E. Martin and N. E. Crow.

It was left to the Secretary to arrange the Spring Meeting, 1925.

Dr. F. DILLON then read his paper entitled "The Methods of Psychotherapy" (see p. 48). Dr. CHAMBERS voiced the meeting's appreciation of the paper and opened a discussion, in which Drs. G. F. BARHAM, J. CARSWELL, H. WOLSELEY-LEWIS, J. N. SERGEANT and G. W. SMITH took part.

Mr. W. H. GATTIE afterwards read his paper on "Some Anomalies under the existing Lunacy Acts," a discussion of which was then opened by Dr. CHAMBERS, followed by Drs. BARHAM, KING, WOLSELEY-LEWIS, SERGEANT and R. WHITTINGTON.

The members were then entertained to tea, which concluded this very interesting and enjoyable meeting.

SOUTH-WESTERN DIVISION.

THE AUTUMN MEETING was held by the kind invitation of Sir Cecil Chubb and Dr. S. Edgar Martin at "The Old Manor," Salisbury, on Thursday, October 23, 1924.

There were present twenty-two members and four visitors.

Dr. P. W. MacDonald was voted to the chair.

The minutes of the last meeting were confirmed and signed.

Dr. Starkey was nominated as the Hon. Divisional Secretary, and Drs. R. Eager and J. G. Soutar as Representative Members of Council.

The Spring Meeting was fixed for Thursday, April 23, 1925, at Brislington House, Bristol, on the kind invitation of Dr. J. M. Rutherford.

A letter from Mrs. Glendinning thanking the members for their expression of sympathy with her in the loss of her husband, Dr. J. Glendinning, was read.

Dr. F. W. BRODERICK then read a paper on "The Natural Arrest of Dental Caries" and illustrated it with specimens, and showed a patient in whom arrest had been secured. Drs. P. W. MACDONALD, F. H. EDWARDS, A. C. KING-TURNER, H. DEVINE and REED took part in the ensuing discussion and Dr. BRODERICK replied.

During the morning members and visitors were conducted round the Institution and grounds by Drs. Westrup and Reed, in the unavoidable absence of Dr. Martin, and were most hospitably entertained to lunch, at which Sir Cecil Chubb presided.

A hearty vote of thanks was accorded to Sir Cecil Chubb and Dr. Martin for their hospitality and the provision of a most interesting day's programme.

NORTHERN AND MIDLAND DIVISION.

THE AUTUMN MEETING of the Division was held on Thursday, October 23, at The Grange, near Rotherham, on the kind invitation of Dr. G. E. Mould, who entertained the members to lunch.

Sixteen members were present.

Dr. Mould occupied the chair, and the minutes of the last meeting were confirmed and signed by the Chairman.

Drs. T. Stewart Adair, G. E. Mould and Bedford Pierce were re-elected members of the Divisional Committee.

The following candidate for election as an ordinary member of the Association was duly balloted for and declared elected:

GEORGE BROWN, M.B., B.Ch.Glasg., Assistant Medical Officer, South Yorkshire Mental Hospital, Sheffield.

Proposed by Drs. W. J. N. Vincent, J. M. Mathieson and F. Back.

Dr. J. M. MATHIESON then read reports of two cases. The first was that of a man who a month prior to his admission to Wadsley Mental Hospital, swallowed metal rivets, washers and hob-nails to the number of over 500 and weighing in all 51 oz. These were removed by operation, but the man subsequently died of tuberculosis.

The points of interest were (1) the length of time the metal was present in the stomach without giving rise to grave symptoms, and (2) the comparatively healthy appearance of the mucosa of the stomach and its capacity to assimilate food, although more than half full of metal.

The second case was that of a man who, while recovering from an attack of manic-depressive insanity, developed high fever with intense headache. This was accompanied by paresis of groups of muscles, drowsiness and ptosis. The blood was found positive for both typhoid and paratyphoid B. The *post-mortem* examination revealed a large subdural abscess extending the whole length of the left cerebral hemisphere, with marked depression of the brain, especially in the frontal and occipital areas. The intestines were recovering from typhoidal infection and the pus from the abscess gave typhoid reactions.

The chief points of interest were (1) the simulation of many characteristic signs of encephalitis lethargica, (2) the presence of the large abscess in the brain, without any definite localizing symptoms or fundus changes, and (3) the paresis of definite groups of muscles.

Several members spoke in the discussion which followed.

Dr. FREDERICK BACK then gave a paper on "The Malarial Treatment of General Paralysis." This gave the results obtained from the cases treated at the Wadsley Mental Hospital this year. There had been no death from the malaria and no case had been made worse. The clinical results show that two cases had been discharged and were back at work, and that in three others the improvement had amounted to a remission, and they also were about to be discharged. In seven others a considerable improvement was noted—a total of 75 *per cent.* in which benefit resulted; 25 *per cent.* showed slight improvement or no change.

The patients have shown mental improvement in becoming quiet, clean, orderly and industrious; physically in regaining muscle-tone and a steady gait. In some cases the pupillary reaction and the knee-jerks have returned.

The laboratory findings showed that in 83 *per cent.* there was a decreased gold

reaction in the cerebrospinal fluid that in 58 *per cent.* there was a decreased protein content and a decreased cell-count, and in 25 *per cent.* the reaction of the cerebrospinal fluid became negative to the Wassermann test. The paper led to an interesting discussion.

Dr. GOSRWYCK then read a paper by Dr. REES THOMAS and himself on "Some Observations on Delinquent Mental Defectives" (see p. 41). They were cordially thanked on its conclusion.

A very hearty vote of thanks was passed to Dr. Mould for his hospitality.

SCOTTISH DIVISION.

A MEETING of the Scottish Division of the Medico-Psychological Association was held at the Aberdeen Royal Mental Hospital on Friday, November 28, 1924.

Prof. G. M. Robertson occupied the Chair.

There were 21 members present.

The minutes of the last Divisional Meeting were read and approved, and the Chairman was authorized to sign them.

The Business Committee was appointed, consisting of the nominated member of Council, the two Representative Members of Council, along with Dr. R. B. Campbell, Dr. Annandale and the Divisional Secretary.

Dr. T. C. Mackenzie and Dr. D. Ross were nominated by the Division for the position of Representative Members of Council, and Dr. Wm. M. Buchanan nominated for the position of Divisional Secretary.

The following candidate, after ballot, was admitted an ordinary member of the Association:

DOUGLAS B. M. LOTHIAN, M.B., Ch.B. Edin., D.P.M., Assistant Physician, Craig House, Morningside Drive, Edinburgh.

Proposed by Prof. G. M. Robertson, Drs. W. McAlister and T. M. Davie.

The SECRETARY reported that, as instructed at the last meeting of the Division, the Scottish members of Council had reported the position of negotiations with the General Nursing Council of Scotland to the Annual Meeting of the Association in July, and read the resulting correspondence, of which the following is a copy:

"Springfield Mental Hospital, near Tooting, S.W. 17, July 21, 1924.—The Registrar, General Nursing Council for Scotland, 18, Melville Street, Edinburgh.—Dear Sir,—The following proposals of the General Nursing Council of Scotland were brought before the Medico-Psychological Association of Great Britain and Ireland, at its Annual Meeting held at Belfast, on July 2, 1924: (1) That the General Nursing Council for Scotland invite the Scottish Division of the Medico-Psychological Association to form an Advisory Committee to meet with the Education and Examination Committee of the Council for the purpose of considering matters pertaining to the Final Examination for Mental Nurses. (Letter to Dr. Buchanan 1/4/24.) (2) That the General Nursing Council for Scotland invite the Scottish Division of the Medico-Psychological Association to nominate examiners for the Final Examination for consideration by the General Nursing Council. (Letter to Dr. Buchanan 1/4/24.) (3) That the Medico-Psychological Association should exempt from its Preliminary Examination Scottish nurses who have passed the Preliminary Examination of the Scottish General Nursing Council. (Letter to Dr. Buchanan 5/6/24.)

"I am pleased to report that all these proposals were unanimously accepted. It has been throughout the object of the Medico-Psychological Association to co-operate loyally with the General Nursing Councils in order to make the State Examinations and Registers a success. By the acceptance of these proposals by the Medico-Psychological Association, it is hoped it will be possible for a mental nurse in Scotland to pass the State Examinations and have her name placed on the State Register, and also to obtain at the same time the Certificate for Proficiency in Mental Nursing granted by the Medico-Psychological Association, without the personal trouble and administrative derangement produced by duplicate examinations held on the same subjects, provided the arrangements for the Final Examination are successfully adjusted by the two Committees. With regard to the fourth proposal or condition—namely, that the Medico-Psychological Association should cease to hold any Preliminary Examination of its own in Scotland, which

would of course not interfere with the activities of the Association elsewhere—I regret to say that the Medico-Psychological Association cannot accept this proposal. The scope of the activities of the Medico-Psychological Association of Great Britain and Ireland is imperial, and it cannot withdraw from this position without detriment to mental nursing at home and in the Dominions. It cannot agree to discriminate against Scotland in particular. The condition referred to is not related in the most remote manner to any provision for carrying out the Act. It is uncalled for. For information I include copy of the arrangements made with the General Nursing Council in England. A copy of this letter is being sent to the Scottish Divisional Secretary of the Medico-Psychological Association. Yours faithfully, R. WORTH, Hon. General Secretary."

"General Nursing Council for Scotland, 18, Melville Street, Edinburgh, October 6, 1924.—Dr. R. Worth, Springfield Mental Hospital, near Tooting, London, S.W. 17.—Dear Sir,—Your letter of July 21 was considered at a meeting of my Council on 3rd inst. I am instructed to inform you that after full consideration my Council agreed to drop the fourth proposal mentioned in your letter, namely, that your Association should cease to hold in Scotland any separate Preliminary Examination for Mental Nurses. My Council have agreed to withdraw this proposal solely in order to meet your Association's views, but in order to prevent misunderstanding, I am asked to explain the reasons which led my Council to make the proposal, and which continue them in their belief that in the best interests of mental nurses it would have been well if your Association could have seen their way to agree to it. I am asked to say at the outset that my Council recognize entirely the position of your Association and the great work it has done for Mental Nursing. In fact it is so well known that throughout this correspondence they have not thought it necessary to stress this point. I am also to add that there was no suggestion that your Association should cease to grant its Certificate in Scotland. The only matter which my Council felt they were bound to endeavour to arrange was that there should not be two separate examinations, and my Council still feel that it would have been desirable if this could have been arranged. If your Association's Preliminary Examination is continued certain nurses may continue to take it, and afterwards discover that they desire to go in for another branch of nursing. In order to do so such nurses would require to take over again this Council's Preliminary Examination, and would further be debarred from the shortened training in a second branch of nursing provided under my Council's Rules for Nurses who have already taken the Council's Examinations in Mental Nursing. My Council's Final Examinations do not commence until next year, but meantime I shall be glad to have the names of the Advisory Committee of your Association to meet with my Education and Examination Committee in terms of the first proposal.—I am, yours faithfully, W. S. FARMER, Registrar."

The SECRETARY further reported that this correspondence had been submitted to the Quarterly Meeting of the Association in London in November; that it had been considered satisfactory; and that the nomination of the Advisory Committee referred to had been remitted to the Scottish Division. It was also pointed out that the Association's policy with the Nursing Councils would involve the appointment of one representative from England and one from Ireland on this Advisory Committee, the total number of which the Registrar of the Scottish General Nursing Council had suggested should be six.

The following members were then nominated: Drs. M. J. Nolan, R. Worth, Prof. G. M. Robertson, Drs. John Keay, T. C. Mackenzie and W. M. Buchanan, on the understanding that in the event of the number of the Committee exceeding six the names of Drs. G. Douglas McRae and R. B. Campbell be added.

Dr. McRAE called attention to the delay in announcing the results of the Nursing Certificate examinations, and asked if nothing could be done to expedite the assessing of the papers. He also suggested that the publication by the Examiners of model answers to the questions set would be helpful to teachers of candidates. The Secretary was instructed to communicate with the General Secretary with a view to having the matter raised at the Quarterly Meeting of the Association in February.

The SECRETARY reported that there had been no further meeting of the Conference dealing with Amendments to the Asylums Officers' Superannuation Act. He intimated that, since the last meeting of the Division, the Royal Asylums had reached agreement as to their inclusion, on a permissive basis, within the

provisions of the Act; that the necessary amendments had been drafted and were now in the hands of the Secretary of the Conference.

The meeting was then adjourned and members were kindly entertained to lunch at the hospital. After lunch, on the motion of Dr. D. Fraser, the Directors of the Aberdeen Royal Mental Hospital and Dr. Dods Brown were cordially thanked for the arrangements made in connection with the meeting and for their kind hospitality.

On the meeting reassembling, Dr. T. C. Mackenzie invited the Division to hold the Spring Meeting at the Inverness District Asylum. Dr. Mackenzie was thanked for his invitation, and it was unanimously agreed that the Spring Meeting take place at Inverness in May.

Dr. A. GREIG ANDERSON read, by invitation, a paper on "Encephalitis Lethargica," reviewing the history and literature of the disease, and incorporating his clinical observations of the cases which had occurred in the Aberdeen area. The paper was discussed by Drs. ROSS, McRAE, HENDERSON, DODS BROWN and Prof. ROBERTSON, and was illustrated by the clinical demonstration of a case of Parkinsonian syndrome following encephalitis.

Dr. DODS BROWN presented a case of Dementia Præcox with marked reactions of several years' standing and recovery following surgical operation; and Dr. ANNANDALE a case of Involutional Melancholia with an unusual group of symptoms of organic nervous disease. Both cases led to an animated discussion.

Time did not permit of Dr. Craig's paper on "Fractional Test-meals in Certain Types of Mental Disorder" being read.

Before and after lunch members were conducted over the Hospital by Dr. Dods Brown and his assistants, and after the meeting Dr. and Mrs. Dods Brown kindly entertained members to tea.

A dinner was held in the evening in the Athenæum Restaurant, and was well attended.

IRISH DIVISION.

THE AUTUMN MEETING of the Irish Division, Medico-Psychological Association, was held at the Royal College of Physicians, Kildare Street, Dublin, on Thursday, November 6, 1924, Dr. M. J. Nolan, President, M.P.A., in the Chair.

The minutes of the previous meeting were read and signed by the Chairman.

Letters were read from the Local Government Board in reply to the resolution sent to that body at the last meeting.

The following candidate was balloted for as an ordinary member of the Association and was duly elected:

RICHARD DOMINICK BRENNAN, M.B., B.Ch., B.A.O., N.U.I., Assistant Medical Officer, District Mental Hospital, Waterford.

Proposed by Dr. A. FitzGerald, and *seconded by* Dr. O'C. Donelan and R. R. Leeper.

The meeting next proceeded to consider the position of the Irish Division as regards the registration and training of mental nurses in Ireland. After a long discussion and consideration of the reply to the letter and resolution forwarded to the Government by direction of the Division at the Spring Meeting, the following resolution was proposed by Dr. Mills, seconded by Dr. Gavin, and passed unanimously, and a copy was directed to be sent to the Local Government Board of the Free State:

"That this meeting received with much regret the intimation conveyed in the letter of the Ministry of Local Government of July 1, 1924, stating that, if an opportunity occurred when five years' duration of the existing Nursing Council's existence had expired, the Government would possibly see their way to appoint a representative of the mental specialty of the medical profession to a position as member of the Council.

"The Irish Division, M.P.A., wishes to point out to the Government that the most important work of organizing their examinations, etc., will occur within the current five-year period, and begs to request that the granting of representation to those most directly concerned in the training of mental nurses be reconsidered. Under the regrettable circumstances that direct representation

cannot be given at present to the Medico-Psychological Association, the Irish Division hopes that full consideration will at least be granted to whatever representations may be made by the Advisory Committee nominated from the members of this Association by the General Nursing Council of Ireland to represent it, and that no action may be taken by the General Nursing Council, vitally affecting the interests of mental nurses and their training, or mental hospital administration, without the knowledge of the Advisory Committee requested by the Government (as represented by the General Nursing Council) to act as advisory members to the General Nursing Council."

The meeting wished to express its decided opinion that under no circumstances should the standard of education or examination for mental nurses be lowered in this country from that of the Medico-Psychological Association of Great Britain and Ireland, and set out in its syllabus and *Handbook*.

The meeting next proceeded to appoint all the attending members, together with Dr. J. O'Connor Donelan, as a Committee to be called together by the Hon. Secretary to enable him to deal with any matters of urgency affecting the interests of mental nurses and nursing, and to obtain a plebiscite of the Irish members re the possible appointment of examiners, and if occasion arose in the near future, to deal with any action taken by the General Nursing Council for Ireland.

By the kind invitation of Dr. Keene, the Spring Meeting is to be held at the Stewart Institution, Chapelizod, on Thursday, April 2, 1925.

THE MANOR INSTITUTION, EPSOM: SOME COMMENTS ON ITS FIRST TWO YEARS.⁽¹⁾

By THE MEDICAL SUPERINTENDENT.⁽²⁾

The Manor Institution (1,003 beds) commenced to function as one for the care of mental defectives on January 3, 1922, and this article is an attempt to describe some of our methods following a suggestion that this institution has been run on somewhat different lines to most others of its kind.

It should be stated at the outset that we have no children of the very lowest grade, except in the school, which circumstance accounts for our being able to claim that 100 *per cent.* of the patients are employed usefully. It has been our ambition to extend to the boys and girls as much freedom as possible with a view to culturing them to live as near as can be the lives of normal individuals. Some of the features that appear to strike visitors are that children, or adults, go about unattended, that there are open doors and gates, no walls, etc., or other obstacles to running away, and the association and meeting of the sexes is as occurs in the outer world.

This, I suppose, is all true to a certain extent, and of necessity increases the responsibility of the staff, and requires a detailed knowledge of the individual characteristics and careful organization. In some cases the meeting of the sexes occurs as the result of structural arrangements, but in others it is intentionally allowed, e.g., the object of a workshop containing both sexes is that boys who are unable to fend for themselves, i.e., the paralyzed and simpletons, etc., who are apt to get bullied and knocked about, are found to be mothered, well cared for, and encouraged to work in girls' workshops; at the weekly dance, which has now become the most popular form of entertainment, boys and girls not only dance but are allowed to sit and talk together if so disposed, as opposed to the old institution idea of the two sexes sitting on opposite sides of the hall. With a well-placed staff there can be no risks, and the behaviour is most orderly. This arrangement adds greatly to the enjoyment, and without doubt has done much to encourage interest in personal appearance—even many of the most slovenly being observed to take infinite pains in this respect—and a normal regard for respectable behaviour in the presence of the opposite sex. At present smaller boys are being trained with a hope that they will one day take their place in the orchestra, which, for the time being, only consists of staff. It is now really excellent, and, without doubt,

⁽¹⁾ Reprinted from *Studies in Mental Inefficiency*, April 15, 1924, by kind permission of the Editor and the Author.

⁽²⁾ Dr. Edward Salterne Littlejohn.

forms one of the most useful adjuncts we possess, and to miss a dance is a great punishment.

I have repeatedly heard the Manor spoken of as an open institution, but this statement requires some qualification. All our male wards for boys over school age are open, there being no locked doors, and the patients come and go to work as they please or can enter the gardens or recreation grounds at will. A smaller number of boys has to be dealt with differently, and will be described later under the headings of the "S.S." and "O.K." The girls, on the other hand, with the exception of the Girl Guides, numbering approximately 100, also to be described later, are kept under rather closer supervision.

The chief difficulties found in running an institution on these lines are the facilities to abscond, the endeavours of the boys to converse with the girls, and many other minor delinquencies; but these worries, to my mind, have been more than repaid by the general happiness and contentment of our population and its educational advantages. Our difficulties were doubtless very considerable at the start, and in my opinion such a system is impossible without submitting one's flock to what might be described as some intensive form of living—that is, they must be at work, play or sleep, which permits of no time for getting into mischief.

Numerous industries and occupations exist for all; out of work hours similar pains are taken in organizing games of all kinds, gymnasium, swimming, expeditionary parties, voluntary educational classes for those over school age, etc. It was found quite early that our week-ends, with work shut down, were troublesome times, and the Manor Committee wisely decided to permit Sunday games out of church hours, which has made all imaginable difference in behaviour. Different members of the staff are detailed daily to see that footballs, cricket equipment, etc., are plentifully in use and matches started, it being found very essential to be able to hold somebody always responsible for these necessities.

In my opinion it is also of the utmost importance that there should be some definite and systematized method for classifying children according to marks received for behaviour and work done—due regard being paid to their mentality—whereby some disciplinary measures can be taken, if necessary, by the removal of privileges, etc. The establishment of the Guide and similar movements not only works to this end but is responsible for much pleasure and useful training. I will now, in more detail, describe some of these organizations.

GUIDES.

I should say at the outset that without a competent enthusiastic and altruistic officer, no good, in my opinion, will result, and needless to state nothing is obtained by simply dressing a child in uniform. We had our first girls enrolled at the Manor three months after opening, since when the movement has steadily developed, and is now represented by a large company (known as the 4th Epsom), embracing Rangers, Guides and Brownies. Naturally at the outset we were confronted with many problems, difficulties and failures, to obviate which we have organized what is now a somewhat complicated but successful and very flourishing system which can be briefly described as follows:

The Guides live in a separate villa known as Guide Lodge.

Guide Lodge is ruled by two bodies—The Court of Honour and the Council of the Lodge.

The Court of Honour is responsible for the discipline and general government of the company and its affairs. It consists of the captain of the company and her two lieutenants (members of the staff); Brown Owl, who also acts as secretary and treasurer, the company leader and patrol leaders (all girls). The captain or her lieutenants preside at all meetings of the Court of Honour.

The Council of the Lodge, consisting of the staff, i.e., the captain and the charge nurses, is responsible for the discipline and general management of the lodge as a place of residence, the former only visiting there. One of the chief objects of its formation was that nurses who were performing duties as such should be kept cognizant of what was being done by the Guides: in the early days the nurses claimed that certain things were done without their knowledge—a state of affairs which led to many troubles. By the present arrangement the Court of Honour and Council of the Lodge have to report to and work in conjunction with one another.

Girls who are regarded as being likely subjects to submit to the discipline and possessing the requisite capabilities for being trained in Guide procedures, are invited to visit for one week in order to acquire elementary knowledge of the work and of the training to which they would have to submit. At the end of this time, if still considered suitable and still willing, they are invited to live with the Guides for one month, during which time they are considered to be on probation.

At the end of this month, if deemed expedient, they are placed on probation for a further month, and then, if the reports of the patrol leader and other officers of the Court of Honour are satisfactory, they are finally accepted, proceed to train, and be enrolled in accordance with Guide law. The Manor authorities neither claim nor wish for any jurisdiction with regard to Guide proceedings. The Lodge has its own book of constitution, containing regulations, from which no departure may be made, and embodied in which are sufficient elements to ensure that nothing affecting the administration of the institution can take place without the necessary sanction of the Medical Superintendent, a book being kept whereby he, by signature, approves or refuses requests presented to him.

Guides take part in the industries of the institution the same as the rest of the children, and can obtain badges as the result of attaining proficiency when examined by Guiders or people connected with the movement from the outside world.

Apart from this work and the ordinary company training, they are responsible for the manual work and upkeep of their home, *i.e.*, the Guide Lodge. This work is performed weekly by different patrols under the supervision of the patrol leader, and in the event of not being satisfactory, the Court of Honour deals with the matter. The Court of Honour can expel any girl from their company, and she is then sent back into the institution, so that it has much disciplinary power.

The privileges of becoming a Guide are pretty extensive, *e.g.*, she is on parole, going about unattended in the institution or grounds, certain areas being placed out of bounds. They are required to be indoors by a certain hour—that, is when the flag is “struck,” the time depending upon the season of the year. As a company they attend rallies connected with Guides in the county and occasionally other functions; they are permitted to attend outside churches, and outing parties are organized for them. Last summer a number of them were allowed to go away for two weeks to live under canvas with their captain. During the summer months tents are erected, in which they sleep out in the grounds if they so wish. The Lodge may issue invitations to friends and gives dances or entertainments on occasions, providing their own refreshments, *etc.*, from Lodge funds, the list of visitors’ names being first submitted to the Medical Superintendent for approval. It is from members of the Guides that girls, so far, have been permitted to go into local domestic service, both daily and on licence, part of the arrangement being that they shall, once or twice a week, return to the institution and continue with Guide instruction.

The life of the Guide is a very full one, as the officers devote very much time, after duty hours, to the amusement and training generally, so that our girls are now regarded by the neighbouring Guides as being of quite a high standard. To my mind it is very encouraging to find that members of the nursing staff are beginning to go into the ranks for training. The company has recently commenced to publish its own monthly magazine.

“BROWNIES.”

The Brownies are in charge of Brown Owl—one of the senior Guide girls — and her Tawny Owl (a member of the staff), by whom they are regularly trained pending enrolment as Guides when age permits.

Scouts.

The Scouts (5th Epsom Troop) have developed on somewhat different lines to those described above in reference to Guides, chiefly because there has been no isolated building sufficiently large for residential quarters. A Scouts’ headquarters has, however, been established in a building well apart from the main institution, and owing to the wise hospitality extended by the Manor Committee in approving of neighbouring Scouts visiting, much has been learnt by our boys

both on the recreation field in the form of football, cricket, athletic sports, etc., as well as at headquarters, where lectures and Scout training in all its branches proceed regularly under experienced Scout masters of local troops in addition to our own. In my mind no doubt exists as to the beneficial effect that has accrued from our association with the outside world through the medium of visiting scouts.

As in the case of Guides, Scouts can claim many privileges: they are provided with a pass that permits of being out on parole for stated hours, and, following a letter previously addressed to the parents, may, on occasions, proceed home for the day unaccompanied. As a troop they attend local jamborees in the neighbourhood, take part in outside church parades, and on one occasion, when His Majesty the King was visiting Epsom, three of our boys took their place with nine other scouts to form a body-guard. One of our boys has been, in the presence of other troops, awarded the certificate and Gilt Cross from the Chief Scout for displaying presence of mind in rescuing a child from a perilous position.

At Headquarters various social entertainments, supper parties with local Scouts from time to time take place, and in the event of a Scouts' dance being held in the town some of our boys are permitted to attend. In the summer they are allowed to sleep under canvas in the park, and if attended by a member of the staff, *i. e.*, the Scout Master, to camp beyond the limits of the institution grounds, coming in daily for their usual work. As with the Guides, a boy has to go through certain preliminary stages, lasting two months, before he can be enrolled, with a view to passing his "Tenderfoot." Scouts are also left to organize their own affairs, as far as possible without any interference from the Manor authorities, except that any requests of a nature affecting the administration of the institution are submitted in a book to the Medical Superintendent for his approval.

"CUBS."

The Cubs at this institution are under the command of the Girl Guides' captain—a procedure permitted by the Association. They form a delightful little company, and can provide a most amusing and entertaining programme. It was with considerable pride that we saw our Cub tug-o'-war team win the final pull last autumn at a general meeting where some seven or eight troops of various towns were represented.

SYSTEM OF REWARDS.

It goes without saying that any institution of this nature must have some means at hand for controlling the discipline of its boys and girls; more especially is this the case where so much freedom and opportunities of getting into mischief exist.

Confinement to bed, and, on the very rarest occasions, a simplified diet, is our last resort.

The main method of control consists in classification and the allowing of many rewards and privileges, which can be removed, and so act as a deterrent. Both sexes over school age are divided into four classes, each class carrying with it certain rewards and privileges. A misconduct report is written out by the staff on every occasion of offence and the culprit is brought before the Medical Officer the following morning, and he, after consideration of the facts, intimates why the boy or girl is being reduced in class. Once a month the medical staff discusses those placed in the lowest classes, and decides whether promotion can be allowed. This decision is arrived at by reviewing the marks allotted for the past four weeks. Each workshop or place of employment is provided with a book, in which the supervisor inserts, when necessary, a bad mark for unpunctuality, misbehaviour, laziness, etc. These bad marks deducted from the possible maximum of good marks represent those earned at industries. In addition the wards reward marks for work done and interest taken in the upkeep of their place of residence. The Medical Staff also have a column where they are empowered up to a certain limit to give marks, taking into consideration the mentality and general behaviour of the child. The sum total of all these methods represents a percentage of possible marks that could be earned, and since each class demands a certain percentage, the grading into classes is worked out automatically. The books are made up daily and appear weekly in the Medical Superintendent's office for initialling. Besides the marks in columns placed opposite each child's name, a further insertion

is made stating the nature of and the quantity of work finished at any given industry.

The rewards and privileges consist of such things as tobacco, sweets, ribbon-crochet-cotton, etc., attending dances and entertainments, the town cinema, leave from the institution with friends, half-holidays, etc.

"S.S." AND "O.K." BOYS.

As stated earlier, the male side, that is, boys over 16 years of age, numbering 273, reside in open wards, by which is meant that doors are unlocked, and the boys come and go to work or enter the recreation grounds or gardens as they please. Needless to say we soon discovered that some were found to abuse these privileges and could not be dealt with on freedom lines. These particular boys are now satisfactorily controlled by classing into two groups, which are popularly known here as the S.S. and O.K.

The S.S. (or special supervision) boys represent the habitual absconders and the incorrigibles who house-break, get into our tuck-shops, thieve on every possible occasion, and can conform to no regulations of any kind whatsoever. They live in a room by themselves and never go unattended anywhere, and are taken to sleep at night in an observation dormitory. They are still employed in the various industrial shops, but have to be taken to and fro in charge of the instructor with whom they work, who calls for and returns with them again to the S.S. Room. Such boys can, behaviour and work being satisfactory, still enjoy most other privileges, such as entertainments, dances, football, tobacco, etc. In many ways some of our most popular and delightfully sporting boys exist as the rogues to be found in S.S.

The O.K. boys, so called because they are the observation boys living in "K" Ward, embrace a somewhat different type. These are boys who are always out of bounds without permission, go down to the town, "bird-nesting" in neighbouring orchards, attend local race-meetings, fairs, etc., but inevitably return to the institution after having enjoyed a good day's outing. Such boys are allowed to go and return from work unaccompanied and enjoy all privileges, save that they are marked individuals in the ward, and their failing to return immediately from the shops would be observed. They are not allowed to leave the ward or its gardens until shop hours. In other words their time is always fully accounted for, and we know that they are within bounds. As with the S.S. boys, they can still take part in a football match, etc., but are not given any opportunity by the staff of wandering away.

The S.S. and O.K. boys represent approximately one-seventh of our adult males, the remaining six-sevenths being free agents.

From time to time a boy is discharged, on trial, from S.S. or O.K., or again if O.K. means fail S.S. is resorted to. It is a regrettable fact that an S.S. boy's word of honour, in many instances, is often found to count for *nil*, not lasting more than an hour or two.

A very encouraging fact is that in spite of the freedom and liberty permitted here, only two cases are on record of delinquencies occurring in the neighbourhood attributable to the institution. In the one a boy ran away and stole some reins as he left the town, and in the other a boy broke bounds and was caught with his arm through a shop window taking cigarettes. If such cases are so rare, under supervision, surely no reasonable community should expect or demand the segregation of all certified mental defectives under prison-like regulations; such action is a gross injustice and cruelty to the many. It is regrettable that the word "mental" has to be associated with our wards—a description which seems to always call for ridicule or fear at the hands of the ignorant, who seem to adopt this attitude towards anyone suffering with a diseased mind. This view on the part of the public and the lay mind is such that it is difficult to experiment with freedom, yet I look forward to the time when somebody will be able to show that it is possible, in a large institution with mental defectives under proper supervision, to allow considerable parole, possibly amounting to thousands of instances a year.

FINAL REMARKS.

I think it will be realized from the above that we are rightly spoken of as being a fairly open institution with much freedom enjoyed by the elder children. Its

advantages to my mind are extensive. It promotes happiness, and gives one a far greater insight into the characteristics and behaviour of individuals. This latter knowledge is of considerable importance when consideration is being given to the possibility of recommending a discharge, or permitting of employment in the world either on licence or as a daily employee—a procedure which is being encouraged here.

Happiness is of paramount importance, if good work is to be obtained, as is anything which increases the knowledge of the individual peculiarities and traits of our charges. Faulty conduct in many cases results from faulty environment, bad examples, and no moral training generally, prior to admission. The primitive instincts in many defectives, no matter whether sexual, of acquisition, or of whatever nature, have never been schooled to inhibition, and yet many are unquestionably capable of improvement in behaviour and conduct. For these reasons I encourage the mixing of the sexes. By placing an inseparable barrier between them no inhibition of instincts is called for, and nothing in this direction is accomplished; let them see normal individuals conducting themselves (for the one hope of the mental defective to my mind is his power of imitation), and let them be put to the test, under supervision, where no harm can come, until they themselves learn by experience what should, had they been more fortunate, have been taught to them by their parents and others in healthy surroundings. Unquestionably to run an institution on such lines is a great responsibility and anxiety to the higher officials, more especially so with the majority of staff untrained or with fixed notions.

In the past we have all had to be greatly influenced by the opinion of the public, who, in ignorance, have been responsible for much cruelty and still are. Let us extend hospitality and help to them on every possible occasion, making friends, and by so doing win over their sympathies and increase their knowledge.

We have also been influenced by fear of failure, and still, I suppose, must be, yet I believe controlling authorities are all for advance in treatment on humane lines, and would willingly play their part in upholding any administrator who, with this object in view, found himself being severely criticized.

Most of our difficulties arising under the present *régime* do so, in my opinion, not because the system is at fault, but from conditions over which we have no control; money is short and accounts for the majority; staff has to be limited, and structural defects and requirements cannot always be dealt with. Our residents are being uninstitutionalized but are only gradually becoming so; experience goes to show that it is only a matter of time and organization.

In our first few months troublesome incidents were continuous; two hay-ricks, in different situations on the farm, were fired one afternoon, thatched shelters were burnt, false fire-alarms were numerous, work strikes organized, and a door which had been placed in a corridor and taken exception to knocked down by a trolley filled and pushed with boys, etc. However, I am glad to say this is past history, and though our incorrigible and unstable type of admissions has greatly been added to since, this state of affairs no longer exists, though the same amount of freedom is permitted. Absconders were naturally pretty numerous, but we have, comparatively speaking, few now, and these, in many instances, result from the relatives' connivance followed by concealment of their child. This, I regret to say, is still a difficult problem, since although proceedings in court can be and have been taken against the offenders, this is a most undesirable practice, leading to publicity of malicious statements and lies in local papers on the part of the defendants.

This article has been written by request. I do not pose as an authority on the care and control of the mentally defective, but merely relate my experiences, and, imbued with ideas born of an affection for the mentally afflicted, I strive at the Manor, Epsoin, for advancement, trusting it to be in the right direction.

EDUCATIONAL NOTES.

London County Council.—The Maudsley Hospital, Denmark Hill, S.E. 5 (University of London).—Lectures and Practical Courses of Instruction (under the direction of Sir Frederick Mott, K.B.E., for a Diploma of Psychological Medicine. The eighth course will commence on January 6, 1925.

Part I.—(1) Eight Lectures on the Anatomy of the Nervous System. By Sir Frederick Mott, K.B.E., LL.D., M.D., F.R.C.P., F.R.S., on Tuesdays at 2.30 p.m. commencing on January 6, 1925.

The evolution of the nervous system in the animal series. Physiological levels. Macroscopic and microscopic anatomy of the nervous system. The neurone concept; the projection, association and autonomic systems. Ultimate distribution of the cranial nerves, spinal nerve roots and sympathetic nerves. The meninges; cerebral arteries and their distribution; the intracranial venous and lymphatic systems. The congruence of structure and function in the brain. The congruence of experimental investigation with anatomical observation. The clinico-anatomical methods of investigating the functions of the central nervous system; spinal cord; medulla oblongata; pons; cerebellum; mesencephalon; basal ganglia; cerebral hemispheres. The cortex cerebri in relation to cerebral localization, including the cerebral mechanism of speech. The structure of the endocrine and reproductive organs.

Practical Instruction and Demonstrations. Demonstrator: Charles Geary. Macroscopic anatomy of the brain. Methods of staining nervous tissue and preparing it for microscopical examination. The living nerve-cell—the nerve-fibre. Degeneration and regeneration of nerves. Distribution of sections, illustrating the normal histology of the nervous system and the reproductive and endocrine glands, for mounting as a permanent collection.

(2) Eight lectures on the Physiology of the Nervous System. By F. Golla, M.D., F.R.C.P., Director of the Pathological Laboratory, Maudsley Hospital, on Fridays at 2.30 p.m., commencing on January 9, 1925.

Reflex action; co-ordination and proprioceptive system. Motor system, including muscle and nerve. Sensation; fatigue; localization and reference of sensation, normal and abnormal; special senses; mental work and fatigue; methods of investigation; physiology of the emotions; endocrinology; the autonomic system; action of alcohol and drugs; physiological chemistry; trophic and vegetative functions.

Practical Instruction and Demonstrations—Demonstrator: S. A. Mann, B.Sc. Lond., F.I.C. Physiological Chemistry: Chemistry of the nervous system, and cerebrospinal fluid; metabolism. Physico-chemical methods as applied to biochemical research. Blood and urine analysis—acidosis, uræmia, uric acid. Practical Physiology: Physical concomitants of emotion. Recording reflexes and tremors in man. Action of drugs on autonomic system. The study of reflex action in the spinal animal.

(3) Eight Lectures on Psychology. By Henry Devine, M.D., F.R.C.P., on Thursdays at 2.30 p.m., commencing on January 8, 1925.

Definition and scope of psychology; behaviour; adjustment; classification of responses; instinct; habit; thought; relation of mind to body; the psycho-physical organization as a biological unit; integration; methods of psychological investigation. Analysis and classification of modes of consciousness. Cognition; sensation; perception; imagination; memory; association; judgment. Conation; attention; volition. Affection; emotion; mood; sentiment. Personality; temperament; character. Sleep; dreams; suggestion; hypnosis; dissociation. Illusion; hallucination; delusions; disorders of attention. Fatigue; effects of drugs on reactions.

Practical Instruction and Demonstrations.—Sensation; psycho-physical methods; statistical methods; reaction times; association; memory; intelligence tests; muscular and mental work.

Part II will follow in April, 1925, and will include lectures and demonstrations. A detailed time-table will be issued later.

Posts as voluntary clinical assistants at the Maudsley Hospital may be granted without fee to practitioners of both sexes specializing in psychological medicine. These appointments can be either for whole or part-time work in wards, out-patient department or laboratories as desired. They can be held in conjunction with attendance at either part of the course for the Diploma in Psychological Medicine. Such an appointment will satisfy the requirements of the various examining bodies in respect of clinical experience of mental disorders for the Diploma in Psychological Medicine or for the M.D. in Psychological Medicine; its necessary duration depends on whether it is whole or part time. There are various other opportunities for clinical study, also without fee, to all attending the course. Applications and

inquiries regarding these clinical facilities should be made to the Medical Superintendent of the Hospital.

Fees : For the whole course of Parts I and II, £15 15s. ; for Part I separately, £10 10s. ; for Part II separately, £10 10s. ; for one single series of lectures in Part I, £4 4s. ; for one single series of lectures in Part II, £2 2s.

Inquiries as to Lectures, etc., should be addressed to "The Director of the Pathological Laboratory," Maudsley Hospital, Denmark Hill, S.E. 5.

The National Hospital for the Paralysed and Epileptic, Queen Square, Bloomsbury, W.C. 1.—Syllabus of Post-Graduate Course, February 2 to March 27, 1925.

The Course will consist of the following subjects: (1) Out-patient Clinics, Mondays, Tuesdays, Thursdays, and Fridays, 2 p.m.; (2) Clinical Lectures and Demonstrations, Mondays, Tuesdays, Thursdays and Fridays, 3.30 p.m.; (3) Lectures on the Anatomy and Physiology of the Nervous System (if sufficient applicants), Mondays, 12 noon; (4) Lectures on the Pathology of the Nervous System, Thursdays, 12 noon; (5) Clinical Demonstrations on Methods of Examination (if sufficient applicants), Tuesdays and Fridays, 10 a.m.; (6) Lectures and Demonstrations on the Neurology of the Eye, Mondays and Wednesdays, 3.30 p.m.

For further information apply to J. G. GREENFIELD, *Dean of Medical School*.

ROYAL COMMISSION ON LUNACY LAW AND ADMINISTRATION (ENGLAND AND WALES).

The Royal Commission on Lunacy Law and Administration commenced its sittings at Old Palace Yard, Westminster, on Tuesday, October 7, 1924. The first witnesses examined were Sir Frederick Willis, Mr. S. J. Fraser Macleod, K.C., and Dr. C. Hubert Bond, of the Board of Control.

Sittings have continued since, but it is not expected that the Commission will be able to conclude its labours for some months.

We do not propose to report *in extenso* the proceedings, excellent summaries of which are appearing in the *Lancet* and *British Medical Journal*, but in due course a summary will appear in our pages of all material evidence and also the findings of the Commission.

OBITUARY.

ARTHUR HILL TREVOR, Barrister-at-Law,
Commissioner of the Board of Control.

MR. ARTHUR H. TREVOR, besides his wide and active participation in the work of the Board of Control and his unremitting efforts to ameliorate the conditions and to advance the treatment of persons suffering from mental illness, took such a friendly and helpful interest in the welfare of the Medico-Psychological Association that the news of his sudden and altogether unexpected death, which occurred in his sleep during the night of the 27th and 28th of last September at a shooting lodge at Elvanfoot in Lanarkshire, came as a painful shock; and, despite the interval that has elapsed, it is still difficult to realize that he has gone from our midst. By his death the Commissioners are deprived of a colleague of great personality, who was highly esteemed as a friend by each one of them.

Born in 1858, the only son of Charles Binney Trevor (an Indian Civil Servant), he was educated at Winchester and at Corpus Christi College, Oxford. He was in those days a well-known cricketer—indeed, a famous bat. And, as sporting and athletic instincts formed an important element in his character and often enabled him to find a coign of vantage in dealing with patients who would otherwise have maintained an attitude of reserve, it is fitting that they should find at least an allusion in any outline of his life and work. His prowess at cricket is delightfully recited in the *Morning Post* of September 30 last: A member of the Winchester eleven of 1877 and of the Oxford elevens of 1880–81, he also in the years 1880–84 played for Sussex, and scored a century on his first appearance for the county in the match at Brighton against Kent; those were the days in 'Varsity cricket when, to secure a place, meant a great deal more

than ability to play a sound game. It is said that the feat of which he was most proud was his share in the greatest total of runs scored in one innings by any pair of batsmen; this was in 1882 at Rickling Green, in the famous match between the Orleans Club and Rickling Green, when, out of the former team's score of 920 runs, Trevor (338) and G. F. Vernon (250) totalled 603 runs for the second wicket—the Rickling Green total was only 94. He was also a good shot, by no means mediocre at golf, and very fond of motoring. As to all these attainments he was very modest, and at moments when reminiscences were the subject of conversation, it was rarely that he referred to any triumph of his own; for instance, it was not until the last of the writer's annual travels on circuit with him that he had heard of the above-mentioned famous innings.

Called to the Bar in 1884, he for some years practised on the South-Eastern Circuit and at the Sussex Sessions, and was the author of a book published in 1904—*The Solicitors' Act of 1888, with Special Reference to Procedure and Practice*.

Appointed Secretary to the Commissioners in Lunacy in November, 1905, in succession to Mr. L. L. Shadwell, he rapidly acquired so close and deep an interest in his new work, that it was no small satisfaction to him and no surprise to those of us who had already come in contact with him, when, two years later (October, 1907), he was chosen to fill the vacancy on the Commission created by the death of the late Mr. C. H. Urmson who, it may be remembered, was the victim of a murderous assault by a patient during an official visit to Bexley Mental Hospital, which, though it was not the immediate cause of his death, had left him in impaired health.

Trevor did a prodigious amount of work, not only when on circuit with a medical colleague inspecting institutions and paying other statutory visits to patients, but also in the preparation of reports, memoirs, and other literary work on behalf of the Board; in all this he was most painstaking, was never satisfied until he had looked up all available references, and what he wrote was always lucid and scholarly. He also accomplished a great deal of useful work as a voluntary member of various committees, extraneous to his official duties, but in aid of the better understanding of mental disorders and the advancement of their treatment; mention, for instance, may be made of the active share he took in the work of the Committee of the Medico-Psychological Association in connection with Lord Justice Atkin's Committee upon Criminal Responsibility,⁽¹⁾ before which later on Mr. Trevor, in conjunction with one of his medical colleagues, gave evidence. He was responsible, too, for several reviews of books for this Journal. He also gave evidence before the Royal Commission upon the Care of the Feeble-minded in 1908; and, upon the passing of the Mental Deficiency Act and the constitution in 1913 of the Board of Control, he threw himself heartily into the thus widened sphere of action of the Commissioners.

He was emphatically a powerful link between the professions of law and medicine. An ardent admirer of the latter, he was acutely interested in the broader aspects of medical problems, especially such as those which came up for discussion at his Board or at meetings of the Medico-Psychological Association and of the Medico-Legal Society, at which he frequently attended. These problems he delighted to have explained to him by his medical colleagues and by the members of the medical staffs at mental hospitals, with so many of whom his duties brought him much in contact; and, endowed with breadth of vision and a ready grasp of essentials, he was a tower of strength in promoting progress.

The link between the two professions, inherent, indeed, in the constitution of the Commission ever since its inception in 1845, and which he was ever desirous to see strengthened, was perhaps specially exemplified in him by his habit of first making a careful reference to the exact words of the Statute, and then his constant endeavour, short of their actual infringement, to mould administrative action so as to conform, as far as practicable, to medical aspirations. In this connection his bent of mind, humane and progressive, was conspicuous in his persistent efforts to secure legislation to facilitate the prompt treatment of mental disorder in its incipient and early stages. Up to within a few days of his death he had been preparing with much zest evidence for the Royal Commission on Lunacy Administration and the early treatment of Mental Disorder; and, at their first meeting (on October 7 last), a moving tribute to his memory was paid by their Chairman, the Right Hon. H. P. Macmillan, K.C.

Trevor's fund of human kindness was great—as, indeed, many charitable bodies

and undertakings on behalf of mental welfare could testify. If in his character there was, as he would have been the first to admit, a vein of irritability, it was mainly the expression of an impatience for progress; at his criticisms, however pointed, it was impossible to take umbrage, and, though the subject might be contentious, his geniality never failed. It was doubtless this charm of manner, coupled with his wide general knowledge of affairs, his ripe experience and well-balanced judgment, which made his official visits so generally welcome, and account for the number of those who have referred to his death as a personal loss.

This feeling of regard towards him was of no new growth; for, mindful of his active interest in their work and his manifest wish to co-operate more actively than the fulfilment of his official duties perhaps demanded, the Medico-Psychological Association in 1910 elected him as an honorary member, a distinction but sparingly conferred—only once previously upon anyone other than a medical man. It was partly to mark this membership, and partly to support his medical colleague who was being inducted into the Presidential Chair of the Association, that led him to offer such generous hospitality to our members in connection with the annual meeting in 1921. The spirit of comradeship with its element of sport in which this offer was made produced a great effect, by no means yet forgotten, and which has done much to cement a growing feeling of co-operation between those whose work, though it may differ in direction, unites in its aim for the advance of psychological medicine.

Sudden as it was, as he himself would have wished, there is a pathos about Trevor's death. He had asked one of his medical colleagues so to arrange their joint work that he might be free the whole of September, in order—as he put it—that he might have his last shoot. He was referring to some property in Scotland over which a party of friends, which had always included himself, had yearly shot for a quarter of a century, the lease of which terminated that season. Due to return on the following morning, and after a strenuous but apparently not fatiguing day—for, at its close, he had not hesitated to wade a river—he did, in fact, live to enjoy the day that he recognized would be the last of many happy ones, of whose associations he often talked.

Of dignified appearance, well above the average in height, with an athlete's ease of build and a strong face, its features cast in the so-called Roman mould and giving the impression of high-born courtesy, Trevor was "a Wykehamite indeed in whom was no guile," a typical English gentleman of the forensic school. Quick-witted, clear, broad and fair-minded, firm but suave, and a worthy link in the long chain of legal Commissioners, his memory will be treasured for many a long day.

Mr. Trevor never married and he is survived by his sister, Clara, the wife of Admiral Tate, R.N. (retired), of Nursling, Hants, and by their son, who is also in the Navy. The funeral took place on October 2 in the old churchyard at Westfield, Sussex, near where his parents formerly resided. Besides relatives and private friends, there were present the Chairman of the Board of Control (Sir Frederick Willis), Sir Marriott Cooke (representing the medical side of the Commission), Mr. S. J. Fraser Macleod, K.C. and Col. B. T. Hodgson, representing its legal side, Mr. J. Kirkland (the Board's architect), Dr. Carswell, representing the General Board of Control for Scotland, and several members of the Medico-Psychological Association, including Dr. J. B. Spence and Prof. G. M. Robertson as past Presidents.

C. H. B.

In succession to Mr. Trevor, the Hon. Herbert Crawshaw Bailey, Barrister-at-Law, has been appointed as Commissioner of the Board of Control.

We regret to announce the deaths of Dr. W. A. Parker, Medical Superintendent of Glasgow Mental Hospital, Gartloch, and Dr. James Glendinning, late Medical Superintendent of Monmouthshire County Asylum, Abergavenny. Obituary notices will appear in due course.

(¹) See *Journ. Ment. Sci.*, 1923, p. 209.

NOTICES BY THE REGISTRAR.

FINAL EXAMINATION RESULTS FOR THE NURSING CERTIFICATE, NOVEMBER, 1923.

List of Successful Candidates.

* Passed with distinction.

Bucks.—Charles William Ludlow, Joseph Saw.

Cambridge.—Leonard N. Wallise, John H. Leach, Ernest L. Mason, Arthur S. Matthews, Samuel C. Owen, Elizabeth O. McNab.

Cornwall.—Emily Hamley, Hilda Virgo.

Dorset.—Arthur R. Robinson, Harry J. Dunn, May Rosa Gale.

Essex, Severalls.—Mary Rosa Grant, Margaret D. Smith, Cecilia V. Barr, William J. Holley.

Hants, Park Prewett.—Thomas Smith, Frederick G. Guy, Lilian Cox.

Herts.—Herbert Way.

Kent, Chartham.—Cyril H. Page, James T. Friend, John P. Gower, Horace Hoare, Herbert Hudson, Edward G. V. Jenner, Annie E. Dawkins.

Kent, Maidstone.—Bertram E. Mills, Edward J. Fenner, Lionel F. Vidler, Hilda J. Holdstock, Julia O'Shea, Elizabeth M. Stewart, Ivy E. Saye.

Lincoln, Bracebridge.—John White, Herbert Norton.

London, Bexley.—William Roberts, Christine A. E. Brazier, Madeline A. Edwards, Dorothy L. Prigent, Nellie L. Hodges, Arthur B. Belcher, Ernest A. Cox, Thomas Dalton, Joseph L. Lawson, John R. Marley, John R. North, Frederick W. Jeeves.

London, Cane Hill.—Freda Annie Nicholson, Thomas W. Briggs, Christopher J. Moth, Percy C. Davidson, Charles J. Peckham, Noel F. Phillips, George L. Davidson, Charles W. Donovan, John C. Bacon, May Hilda Alford, Helen E. M. Collins, Elizabeth A. Cronin, Mabel E. M. Revel, Louise E. Swadling, Mylan E. Sadler, Alice D. Shrimpton.

London, Claybury.—Francis A. Webb, Allen G. Gray, Ralph Hawtin, Leonard B. Taylor, Thomas C. R. Nutman, Noble R. Swan, Albert Winter, *James C. Barker, Archibald F. Mace, *Cecil R. Curtis, Edgar H. Hayward, Mary J. Kelly.

London, Colney Hatch.—William S. Hankin, Frederick W. Lory, Joseph Elkins, Benjamin Ginn, Harry Grayer, Edward A. Smith, Simpson A. Milne, Frank H. Warren, William C. Bay, Harry Grix, George A. Reynolds, William Fortune, Arthur K. Chapman, Joseph Bowman, Edmund E. Clarke, John W. Baker, Arthur Thomas, Chas. R. Downing, George W. Owers, Arthur H. Batchelor, George Munro, Williamina Gordon, Emily L. Smith, Jessie Woolmer, Matilda Gouk, Annie Elizabeth Browning, Emily Baldwin, Bridget M. Mileady, Mary E. V. Brotherton, Ada L. Waters, Elizabeth Cooney, *Ivy Priestley, Marion McTaggart, Beatrice Sullivan, Blodwen Hawkins, Sarah Quinn, Coran W. Ellis, Alice B. Hollis, Edith Aspinall, Moffat M. Macleod, Alice Clarke.

London, Ewell Ministry of Pensions Hospital.—Charles Bulley, Arthur Moore.

London, Hanwell.—Bertram R. A. Kyte, Sidney P. Holbrook, Walter L. Griffen, Albert R. Shaw, William A. Pitcher, William A. Harris, Harry Eldridge, Donald Brown, Albert H. Packer, Benjamin Springle, Arthur B. Clarke, Frank Scott, Frederick H. Ware, Margaret A. Dingle, Rose Kerr, Alice H. Cavey, Mary L. Davies, Doris Davis, Mary D. Fox, Ethel B. Stoker, Timothy J. Clements, William Yeo, George H. Jones, Percy J. Bondfield, Charles W. Cranfield, Charles J. Monroe.

London, Horton.—Fanny E. Hancock, Edna E. Howells, Alice Hill, Thomas Gale.

London, Long Grove.—Albert V. Treays, James F. Alder, Lawrence A. Cole, Ernest S. Golding, Alfred Hockey, Frederick Hollingsworth, Leah Hallam, Margaret E. Rust.

Middlesex, Napsbury.—Nellie Cooper, Edna Armstrong, Mary Ann Mason, Alfred Prideaux, Rodney Harrison.

Middlesex, Springfield.—John A. Cupps, Violet Cummings, Hamilton E. White.

Monmouth.—Harvey Palmer, Henry W. Jones, John Tyler, Annie Davies.

Norfolk.—Cyril Leggett, Reginald H. Winter, V. Ivy Stephens.

- Northampton*.—Elizabeth H. Oram.
Northumberland.—Mollie Curran, James Anderson.
Notts.—John W. Knight, Arthur Snowden, Elsie J. Beaver.
Oxford.—Prilomena B. Dunne, Louisa E. Goodey, Alfred C. Buckland.
Stafford.—Freda E. Bradley.
Surrey, Netherne.—Ernest Rhodes, Percy Aldir, Bernard G. Grimshaw.
Sussex, Hellingly.—Annie Trussler, Florence A. Cross, Florence E. Marsh, Phyllis M. Clifford, Percy Edwin Warren.
Sussex, Graylingwell.—Mabel Smith, Frances M. Cole, Emily R. Wheeler, George S. Whitehead.
Warwick.—Molly Allcott, Doris Hughes, Alice Maidwell, Janet Winbush, Jean Mitchell, Evelyn Walker, William Paddock.
Yorkshire, Beverley.—Louisa Wood.
Yorkshire, Wakefield.—Oscar Burkinshaw, Willie Artingstall, *Bernard Spencer.
Birmingham, Rubery Hill.—Lawrence Flixon, Bertha Holt, Ida Taylor.
Birmingham, Winson Green.—Margaret Alchin, Sydney Brown, Henry F. Walker, Eva Morris.
Brighton.—Frank Carter.
Bristol.—Balfour J. Harrison.
Derby Boro'.—Daisy Coulson, Florence Frost, Daphne Townsend, Edward R. Williamson.
Newport.—Edward A. Clarke, Edward C. Trywell.
Norwich.—Millie Cogman, May D. Haines, Beatrice I. Taylor.
Nottingham.—Frederick B. Smith, William A. Ryan, Emily Grange, Margaret E. O'Brien, Edith Ashley.
Plymouth.—Alfred E. Bickford.
Portsmouth.—Alice L. Clarke, Doris J. Roberts, Ethel A. Rochefort, Ellen R. Dolan.
West Ham.—Thomas Dunn, Burton W. Eversden, *Frederick R. Farrer, Francis Gray, Joseph Gibson, William A. Hearn, James A. Kinsman, Percy J. Herringshaw, David Palmer, George Peck, Reginald Spiller, Esther Lock, *Isabella Weir.
M.A.B., Caterham.—Ellen Matthews, Thomas Paxton, William C. Martin, Edwin Miller, James E. Faulkner, John W. Belton.
M.A.B., Fountain.—Edith A. Hawkins, Sarah E. Hodges, Eva G. Cox.
M.A.B., Tooting Bec.—*Bertie T. Eager, Albert Barrow, William Craven, Harry StH. Gillingham, James T. Goodson, Edward Hawkins, William Mann, Leonard B. Piper, James T. Shelley, William H. Westbrook, Edith M. Terry, Maud F. Mackenzie, Norah Rellihan, Florence A. Stratford, Primrose V. Wheeler, Emma Wicks, Kathleen A. Cusack, Grace L. Boorman, Alice G. Jones.
Bethlem Royal.—Elizabeth C. Smith, Ernest J. Essex.
Rampton State Institution.—*Martha Rose Smith.
Royal Naval Hospital, Yarmouth.—Samuel Brice, John William Summers, Charles Bunn.
The Retreat, York.—Hilda Allinson, Minnie Mackenzie, Margaret A. McRobbie.
Aberdeen Royal.—Tamar Laurenson, Jane A. Skinner.
Craig House.—Catherine Middleton, Jean Plenderleith, John Glasgow, Joseph Whitefield.
Crichton Royal.—Rachel S. C. Clapham, Kathleen Fenton, Eleanor D. Jack, Jean Paterson.
Edinburgh District.—Elizabeth Ptolmey, Rhoda E. G. Brownlee, Helen W. Chisholm.
Edinburgh Royal.—Patrick Kilcoyne, Lexie Munro, C. McLean, Annie Jappy, Gladys Bond, Andrew Horne, John J. Kenny, John McLean, William McKenzie, Patrick Barry.
Glasgow, Garloch.—Mary Burns, Mary Angus, Margaret Clark, Dolina McLeod, Catherine McLeod, Mary J. McGinty, John Kilgore, John S. Wilson, Charles Clark.
Glasgow, Woodilee.—Margaret Cogan, Margaret Kidd, Elizabeth Walker, Mary Muirhead, Annie Millar, Catherine Rooney, Sarah Armstrong, Bessie Fleming, Eleanor Starritt, Georgina McKenzie, Isabella Baigrie, Frank Duff, James Stuart, David Stirling, Thomas Wilkins, Frank McGlynn.
Govan.—Christina Mitchell.
Greenock.—*Mary B. Murray, *Alexander McBain.
Inverness.—Edith Macdonald, Mary B. Fraser, Eva L. McAdie.

- Lanark, Hartwood*.—Jeanie G. Brown, Anastasia M. McNeil, Effie Macaskill.
Lanark, Kirklands.—Alexander Peters.
Montrose.—Jessie Arbuthnott, Mary Clark, Isabella Henry, Mary Martin, Elizabeth Simon, Annie Weyman, Bessie S. Douglas, Maggie A. Taylor.
Perth.—Elizabeth Fairbairn.
Roxburgh.—*Sarah Stuart.
Stirling.—Christina McCallum, Mary M. Sharkey, Susan Sullivan, Mary B. McIsaac, Catherine McIsaac, Joan Binnie, Isabella McIsaac, Margaret Heaps, *Ursula Johnston, Isabella M. Martin, Hugh Mathieson.
Ballinasloe.—Edward O'Connell, Edward O'Loughlin, Ada Connolly, Ann Finnerty, Kate Guinnessy.
Belfast.—Victoria H. Byrne.
Down.—William Wallace, Francis McNab, John Mullen, Francis Tumelty, Hugh Lundy, Mary Moore, Sarah Gregory, Margaret Thompson, Annie Tumelty, Mary Walsh.
Dublin, Grangegorman.—Thomas Hall, Michael Murphy, Thomas Kerrigan, Peter O'Neill, Redmond Cox, Stephen McMorro, Alicia Carpenter, Mary Scally, Mary McKenna, Mary McDonagh, Ann M. Shortall, Bridget McCabe.
Dublin, Portrane.—Edmond Lawlor, Maria Peppard, Annie Carney, Mary Huxley, Kate McGrath, Kate Hughes, Rosanna Simmons, Catherine McGrath, Henrietta McSweeney, Esther O'Leary, Mary Aherne, Anne Sherry, Agnes Bermingham, Bridget O'Callaghan, Bridget Scanlon.
Dublin, St. Patrick's.—Catherine C. V. Moseley, Peter Browne, William Robinson, John Stapleton.
Mullingar.—Patrick Devine, Bridget Igoe, Susan McEntere, Bridget O'Rourke.
Omagh.—Sarah Guy, Isabella McNulty, Mary McBride, Lizzie Watson, Annie Dickson, Mamie Moore, Maggie Anderson, Minnie Wilson, Edward Baker, William Ballantine, Henry Johnston, Patrick Nicholson.
South Africa, Bloemfontein.—Martha Maria Ooetzer, Anna Christina Louw, Hester Ada Apperley, Petrus Albertus du Plessis, Jan Frederick Weisner, Jacobus Petrus Beneke.
South Africa, Fort Beaufort.—Ivy Ethel Maude Jacobs.
South Africa, Grahamstown.—Anna Sophia Van Heerden, Maud Alice Kayser, Petronella Gheel, William John Scheepers.
South Africa, Pietermaritzburg.—Hendrik Ebenhezer Kruger, William James Morris.
South Africa, Port Alfred.—Louis Minoi, Harold James Baker, Cecil Cattley Webb, Edward John Bartlett.
South Africa, Pretoria.—Susie Johanna Botha, Elizabeth Johanna Nicol, Hendrik Petrus Scholtz, Lambert Smith, Frederick Johanns Van der Merwe.
South Africa, Valkenberg.—Johanna Jordaan, Rachel Van Zyl.

NURSING OF MENTAL DEFECTIVES CERTIFICATE.

- M.A.B., Darenth*.—Doris Longhurst, Ada Bryan, Alice Burmingham, Elsie Frazer, Edith Friend, Margaret Caris, George William Love, Thomas Tennett, Victor Ferridge.
M.A.B., Leavesden.—Alexander Brazier, Daniel Bird, James Ernest Bennett, George William Davis, Herbert Fordham, Percy Hinsley, Joseph Walter J. Hill, Frank Hulett, Edwen Bodwen Jackson, Rayner Gerald, Ernest Arthur Ryder, Mabel Blew, *Sarah Amy Coleman, Alice Mabel J. Howard, Lilian May Howard, Isabel Frances Johnson, Annie Reynolds, Rose Gertrude Slowey, Matilda Tilly.
Monyhull Colony.—Susan Breeze, Annette Keene, Rose Colson, Beatrice Smith, Arthur Joseph Jackson.
Royal Earlswood Institution.—Percy Hy. Worth, Alfred Dowling, George Berry, Joseph Barnett, Mary George.
South Side Home.—Annie H. Bleadon, Mabel Annie Jarman, Adelaide Leggett, Ethel Maude Tillet, Doris E. Warland.
Stoneyetts Institution.—Patrick Cluye, James Hiddleston, Andrew Devine, Mathew McGarvie, David Clark, Bridgid Kane.
Royal Scottish National Institution.—Jessie McKenzie, Mary M. Roper.

FINAL EXAMINATION RESULTS FOR THE NURSING CERTIFICATE, MAY, 1924.

List of Successful Candidates.

* Passed with distinction.

Berks.—Charles Edward Bailey, James Charles Mitchell, Harold Vincent Rumsey, Cyril Beaumont Pryce, Alfred Perry, Alfred Henry Griffin, Michael McGuin, May Robbins.

Bucks.—William Thomas Chidgey, Maude Ellen Drake, Annie Beatrice Garwood, May McGrath, Edith Seymour.

Cambridge.—Jessie Ann McIntosh, Dorothy Ablett, *Violet Ethel Smith, *Joseph Baker, Florence Lily Bass, Helen Jessie Maud King.

Cheshire, Chester.—Lizzie Roberts, Elsie Beeton, Gwen Mair Ellis, Dora Boffey, Annie Riley, Thomas James Jones, Stanley Lawrence Little, Charles Arnold Vickers.

Cheshire, Macclesfield.—Adela G. Cox, Blanche Naylor, Harriett Shaw.

Cornwall.—Frank Sargent, Harry Nicholls, Frederick Marshall, Percy Charles Davey, George Reuben Commins, John James Symons, Pearl S. Clarke, Polly Drew.

Cumberland and Westmorland.—James Bannister Barber, Isabella Dixon.

Derby.—Jessie Wadsworth, Frederick George Hannath, Thomas Harry Holme.

Devon.—Elsie Florence Gunn, Beatrice Florence Laskey, William Henry Baker.

Dorset.—Vera Loveday Perring, William Henry Martin.

Durham.—Fred H. Douglas.

Essex, Brentwood.—Charles Daniel Barber, Cyrus Arthur Bryant, Edward A. Cunningham, Henry Charles Dean, Ernest Dowding, Francis William Hayes, Harry William Hubbard, Samuel Ansell Pollett, John Arthur Ward, Winifred M. V. Davies, Alice Palmer, Alice Eldridge, Rose Edith Fisher, Gertrude L. Shuttlewood, Bertha Dearing.

Essex, Severalls.—Nellie Maisie Wakeling, Minnie Bensley, *Elizabeth Ida Ford, Maud Isabel Pitcher, Edith Janet Orsler, Daisy Lilian White, Hilda Gertrude Curry, Ada Elizabeth Keane, Doris Gwendoline Philpott, Charles Francis Barton, Frank Douglas Bowcock, Frank Arthur Clarke, Robert Samuel Corner, Cyril Claude Constable, Robert Terry Datlen, Alfred John Holmes, William Ernest Kerslake, Alfred Archibald Lucas, Arthur Page, Edward Henry Tyler.

Glamorgan.—B. J. Parker, Blodwen Jones, Bessie Powell, William E. John Francis Hynes, Elsie Rowberry.

Hants, Knowle.—Margaret Shillitoe, Mabel Elsie Wallis, William Albert Berry, Henry James Budd, Charles Cecil Collins, Dennis Herne, Edward Levett, Owen Joseph McCabe, Charles Warder.

Hants, Park Prewett.—Violet Emily Jolly, Annie Elizabeth Scougall, Arthur James Pithouse.

Hereford.—Alison Louise Carter, Hubert John Finch, Annie Elks.

Herts, Hill End.—Doris Adams, Grace Lilian Brown, Gertrude Lilian Harding, Eleanor Rossiter Oke, Ellen Dorothy Rice, Esther Agnes Whelpdale.

Isle of Wight.—Audrey Joan Penny.

Kent, Chartham.—Victor Herbert Mallyon, Harry Leonard Bushill, Annie Aves.

Kent, Maidstone.—Helen Edgar, Grace Macdonald, Aileen V. Myles, Margaret P. C. Salter, Walter J. Baker, Thomas A. Ash, John H. Harris, Victor Startup, Reginald W. A. Harling, Aubrey C. Gardiner.

Lancashire, Lancaster.—Alice Owen, Mary Healy, Annie Ledwith, Annie Hayton, Elizabeth Brown, Emma M. Conroy, Elizabeth Shires, Clara Veale, Priscilla Parkinson, Florence Pottinger, Sarah Farrer, Doris I. Blamire, Sidney William Smith, Ernest Marsden, Angus Thomas Wright, John Wilson, Harold Bond, Thomas H. Hankey, Henry Derham, Edward Catterall.

Lancashire, Rainhill.—Herbert Grimshaw, Henry Halpin, Joseph Fredk. Brown, George Horn, James Moran, Brian A. Cubitt.

Lancashire, Whittingham.—Cecilia Mary Woosey, Alice Anderton, Jessie Walmsley, Emily Tibbitt, Elsie Craighill, Eunice Eastwood, William John Bath, Ethel Jones.

Lancashire, Winwick.—William Hartley, Victor Kenward, Herbert Jones, Catherine McLoughlin, Clara Thrush, Lilian Sutton.

Lincoln, Bracebridge.—Alfred Varley, Alfred Rosling, Thomas Straw.

Lincoln, Kesteven.—Cecil Edwin Fisher.

London, Banstead.—Dora Elizabeth Boundry, Eva Rose Exeter, Ethel Florence Ellen Moore, Jeannie Kathleen Smith, William Mason Byram, Edward Symes, Frank Harry Whiffen.

London, Bexley.—Frederick Robert Arnett, William John Baker, William John Charles, Albert Lawrence Hammond, Arthur James Hobson, Frederick William John Hunt, William Meacham, William Arthur Medhurst, Emily Anscombe, Carrie Agnes Simmonds, Winifred Hallums, Edith Mary Mannooch, Emily Lawrence, Alice Morrissey, Beatrice Evelyn Bensley.

London, Cane Hill.—Ernest Alfred Blackmore, Lucy Bird Cox, Beatrice Ellen Amy Clarke, Eleanor Mary Rosina Challis, Rosie Clark, Edith Madge Collier, Blanche May Grassby, Rose Hall, Edith Emily Martin.

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NOTICES OF MEETINGS.

Quarterly General Meetings.—February 19, 1925, at Edinburgh; May 21, 1925.

South-Western Division.—April 23, 1925, at Brislington House, Bristol.

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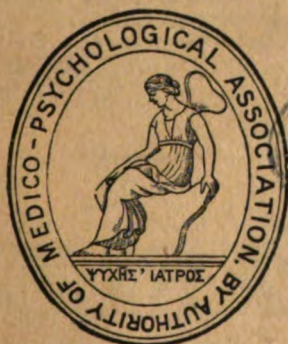
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APRIL, 1925.

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The following Mental Hospital Reports for 1924 have been received :

City of London.
Royal Hospital, Edinburgh.
Glengall Hospital, Ayr.

Also the following Reports :

Butler Hospital, Providence R.I., Annual Report for 1924.
Egypt: Lunacy Division Report for the year 1923.
Annual Report of the Smithsonian Institution, 1922.
Memorias do Hospicio de Juguery, 1924.

Books received :

Les Manifestations Tardives de L'Encéphalite Épidémique: Préface du
Prof. Pierre Marie, par *Le Docteur Gabrielle Lévy*.
Man and his Superstitions, by *Carveth Read*.
The Origin of Man, by *Carveth Read*.
The First Five Thousand, by *Marie Stopes, D.Sc.*
Rejuvenation by Grafting, by *Dr. Serge Voronoff*.
Études de Psychiatrie Sociologique, par *Henri Damaye*.
The Inheritance of Mental Diseases, by *Dr. Abraham Myerson*.
Insanity and Law, by *Drs. H. Douglas Singer* and *William O. Krohn*.
Report on Second International Congress of Military Medicine and Pharmacy, by *Commander William Seaman Bainbridge, M.C.*
Contribution a l'Étude des Syndromes de la Région Thalamique, by *Pierre Hillemand*.

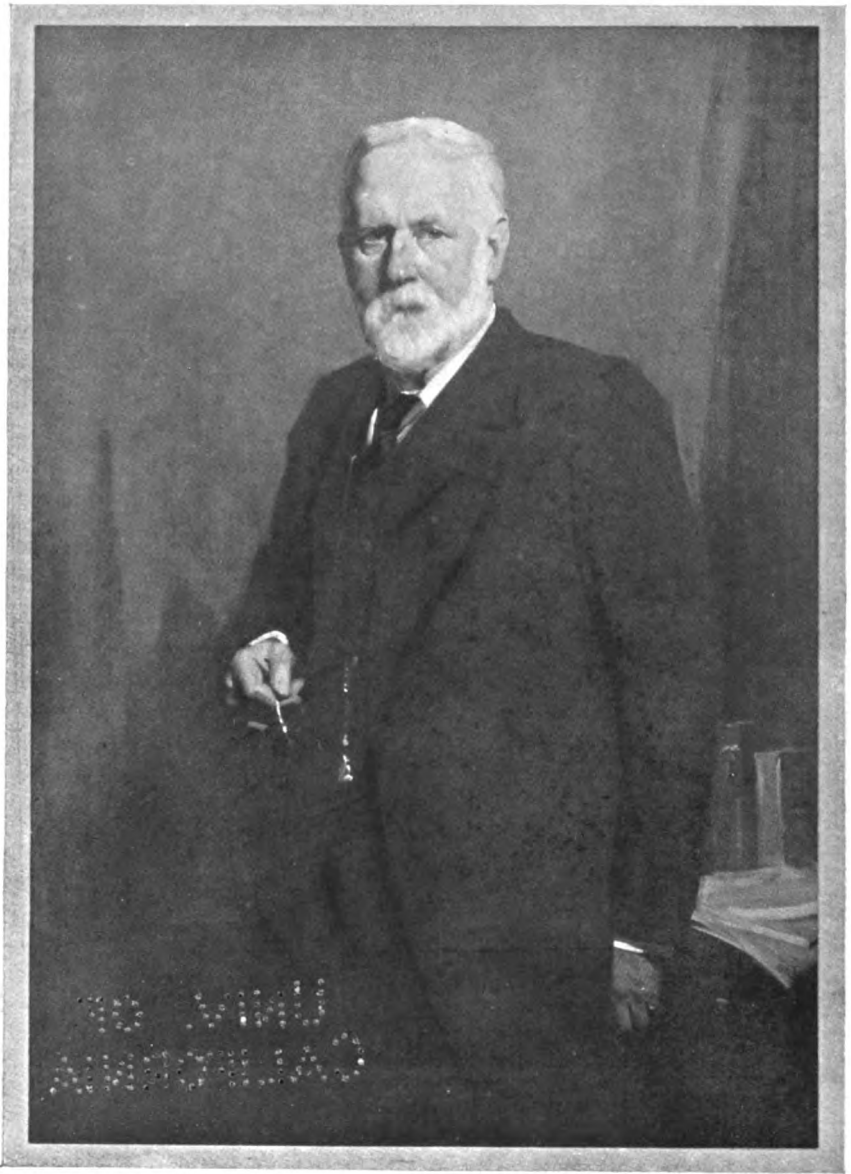
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VOL. LXXI.

JOHN FRASER, M.B., C.M., F.R.C.P., F.R.S. EDIN.

In the department of mental diseases some men have won distinction by their writings, such as Pinel, Esquirol, Guislain and Morel on the Continent, or like Laycock, W. A. F. Browne, Winslow, Maudsley, Bucknill, Skae and Clouston in our own country, but the subject of this obituary gained the respect and esteem of his medical brethren and the public by his unfailing courtesy, his resolute devotion to duty, his kindly disposition toward the officials of mental hospitals and his generous personal interest and sympathy with the patients, whose welfare he ever strove to ameliorate. Moreover these were qualities which found ample scope throughout the length and breadth of Scotland in his long official connection with the General Board of Lunacy as Commissioner and Deputy Commissioner.

Born in 1845 at Thornhill, Dumfriesshire, a county which the labours of Dr. W. A. F. Browne rendered so conspicuous in the department, young Fraser, early left an orphan, attended the local school, and afterwards, by the aid of his uncle, entered the University of Edinburgh as a student of medicine. His career in the great medical school was characteristic of the man. He led a Spartan life, and so enthusiastically did he work that only a wiry constitution sustained him in his midnight vigils during the long winter sessions and the less exacting summer terms. His devotion, indeed, paved the way for an attack of confluent smallpox, for few constitutions could bear the burning of the midnight oil at home and the strain of midwifery and other night cases contemporaneously—a fate not unknown in the ranks of the hard-working senior medical students of those days, when students of slender means lived, as regards quarters and food, on a sum the more favoured men of

modern times would find insufficient. Such a life in the olden time nurtured self-reliance, enthusiasm and unselfishness, and often paved the way for future distinction. The thought of those at home was alone sufficient to brace the student for unique exertions. At the University he won the esteem of his teachers and gained various (nine) medals, including Sir James Simpson's class medal, and finally graduated as M.B., C.M., with highest honours, along with Cowan, Kennedy, Macdougall, Page, Spence and Williamson in the same category. The period was one of transition, *viz.*, when the old statutes for the degree of M.D. were merging into the new, and when that galaxy of distinguished medical professors and principals which rendered the University famous all over the world had been broken by the deaths of Sir David Brewster, John Goodsir and Thomas Traill. Yet Christison, Syme, Simpson, Bennett, Laycock, J. H. Balfour (Dean), George James Allman and Crum Brown still maintained an imposing series in the medical school, which at that time produced such distinguished graduates as Lauder Brunton and David Ferrier under the old statutes (M.D.). Moreover, the accomplished Prof. Laycock had regularly taught medical psychology and mental diseases for many years both in class and mental hospital. Such, then, was Dr. Fraser's environment before graduation.

Shortly after leaving College a temporary vacancy occurred at the Perth District Mental Hospital at Murthly, and an eminent Professor of the University recommended the young graduate for the post, and he entered on duty at once. His genial bearing, enthusiastic interest in the work, his methodical and punctual habits, and his popularity with the patients, marked him out as a young physician of no ordinary type. Entering into all the ways of the place he encouraged the inmates at games in the open air as well as indoors, and took a lively interest in all their engagements within the grounds as well as their picnics in the surrounding country. His case-books and the *post-mortem* book were neatly and punctually kept, and the psychological literature in the library received careful study. Moreover, the pure air, the extensive walks, bordered by flourishing pines and other trees, and the various open-air games soon told on the pale graduate, so that he became active and robust. When his period of office terminated, both staff and patients equally regretted his departure. This introduction to medical psychology doubtless prompted his acceptance of the then vacant post of Assistant Physician in the Fife District Mental Hospital under Dr. (afterwards Sir John) Batty Tuke. On the transference of Dr. Tuke to his uncle's private mental hospital at Saughton Hall, Edinburgh, Dr. Fraser, whose assiduous performance of his duties and his winsome personality had gained him

the confidence of the Fife Board, was elected Medical Superintendent, and he held office for seven years. He by-and-by married Miss Tuke, and it was a pleasure to all to see both not long after at the old quarters at Murthly. Having gained a thorough acquaintance with the management of mental hospitals and cognate subjects, he was appointed a Deputy-Commissioner of Lunacy in 1877.

For some time Sir Arthur Mitchell, Commissioner in Lunacy, following in the lines of Dr. W. A. F. Browne and Sir John Sibbald, both of whom had visited Gheel in Belgium, had paid considerable attention to the "boarding out" in the country of harmless patients from mental hospitals, and Dr. Fraser, after his appointment, cordially seconded his friend's labours in this direction, his chief duties for seventeen years being the inspection of these cases all over Scotland, from Shetland to the Borders. No man could have been better fitted for such a task, for his kindly and sympathetic nature, his thorough knowledge of his subject, and the confidence he inspired in both patients and guardians, all combined for success. By his persistent efforts considerable economy was effected—since costly buildings, grounds and staff were by this means kept in check. No doubt much care in selection of both nurse and patient was indispensable, even in the experienced hands of Dr. Fraser. Indeed, not a few criticisms on this method as seen in its earlier days at Gheel in Belgium, where a whole district and its inhabitants under the charge of Dr. Bulkens followed the "boarding-out system," showed the necessity for stringent selection and supervision.⁽¹⁾ The extension of the system in Scotland, under the careful system of the General Board, has been fraught with many advantages, and none worked for its success more energetically than Dr. Fraser.

By the retirement of Sir Arthur Mitchell in 1894 Dr. Fraser became a Commissioner in Lunacy, and he was senior Commissioner after the retirement of Sir John Sibbald, also a firm supporter of the "boarding-out system." One of the main duties of a Commissioner is the inspection of mental hospitals in Scotland—a task requiring no little tact and urbanity, an intimate acquaintance with structural and hygienic arrangements, with dietary, and, more than all, an intimate sympathy with the patients. On all hands it is admitted that Dr. Fraser possessed an unflinching, unwearied and kindly disposition in dealing with officials in the hospitals. This sympathetic understanding of their difficulties, his wide experience and his personal influence enabled him cheerfully to carry officials with him when changes appeared to be necessary. He also specially interested himself in devising precautions against

"fire" in mental hospitals—a feature of the utmost importance in administration; indeed, it had already caused the formation of trained fire-brigades of staff and patients in some institutions. It was truly stated⁽¹⁾ that "during his term of office greater progress was made in improving the nursing of the insane, in increasing the efficiency of asylum administration and in organizing scientific research into the nature of insanity than at any previous period." He advocated the employment of female nurses in the men's wards, a very important step in the infirm wards—where Byron's eulogism of the sex as "ministering angels" is fully merited. In short, his whole qualities—medical, administrative and social—endeared him alike to patients and officials, so that his retirement caused the loss of a friend to both. It has been the lot of few to receive so many touching letters from all parts of Scotland on the occasion of his demitting office.

No less were his relations with his colleagues on the General Board of Lunacy of the most agreeable kind. They recorded in their minutes their great appreciation of his public services during thirty-two years of office, and Lord Pentland, then Secretary for Scotland, wrote in the highest terms of his zeal and his other qualities of heart and head, which fitted him so well for the arduous task of Lunacy administration.

Thus it was that after his retirement his many friends honoured him in various ways, such as at the "Cap and Gown Club," with Lord Kingsburgh in the Chair, the presentation of his portrait in oils by Mr. Fiddes Watt, A.R.S.A., in the Hall of the Royal College of Physicians, the Master of Polwarth being in the Chair, with Sir Thomas Clouston as chief spokesman in paying a well-merited tribute to Dr. Fraser's public services and his personal qualities.⁽²⁾ This was followed by a public dinner.

Dr. Fraser was a man of middle height, with a spare yet wiry frame, fair hair and refined features, and notwithstanding his modesty, his genial bearing, wide experience and culture made him a delightful companion. His chief physical exercises were golf and tennis, but he was also a good shot. A regrettable accident apparently caused by a tramcar moving off as he was stepping on it, after a visit to his son, Dr. J. S. Fraser, led to his death in Edinburgh in his eightieth year. He is survived by three sons and two daughters. One son, Dr. J. S. Fraser, is a rising aural surgeon in Edinburgh.

W. C. MCINTOSH.

(¹) *Journ. Ment. Sci.*, October, 1861.—(²) *Scotsman* and *Lancet*, February 14, 1925.—(³) *Journ. Ment. Sci.*, April, 1912.

WE have been favoured by an appreciation from a member of the General Board of Control for Scotland (Dr. Hamilton C. Marr), from which the following paragraphs are extracted :

In 1894, on the retirement of the late Sir Arthur Mitchell, *K.C.B.*, Dr. Fraser became a Commissioner, and he was Senior Commissioner from 1899 to 1910, when he retired. Since his retirement he was engaged in work connected with charitable organizations in the city of Edinburgh, and in this connection the Secretary of the Society for the Prevention of Cruelty to Children says : " One could not speak too highly of the work Dr. Fraser has done." This testimony, unsought and independent, is the key to Dr. Fraser's life-work for all who were in trouble and distress, and particularly for those who were mentally afflicted. Whatever Dr. Fraser did he did with enthusiasm and earnestness, and no detail affecting the welfare of the insane was too small or considered by him too trivial to escape notice.

Dr. Fraser was particularly interested in the boarding-out system. This system, which he largely developed, and of which he was naturally proud, is peculiar to Scotland. Its essence lies in an attempt to place all quiet and harmless insane people who no longer require asylum care, and who have no homes in which they can be cared for, under home conditions as ideal as can be obtained.

The number of boarded-out patients in Dr. Fraser's time was about 3,000, and in the course of his duties as Deputy Commissioner he was wont to say that he was one of the few people in Scotland who had been in every parish. This was a proud boast when it is remembered that in Dr. Fraser's day the work of visitation had to be done through the means of a one-horse trap over moors, fens, bogs, fords, by rowing and sailing boats in the lochs and the channels of the Western Isles, of Orkney and Shetland, in all kinds of weather and throughout the whole year; much endurance and courage was required. Dr. Fraser, however, seemed to thrive on the work, and the kindly way in which he is still spoken of by patients, guardians and officials in all the districts in which he visited, testifies to the warmth and interest he had in the welfare of boarded-out patients.

When he became Commissioner, though not losing sight of the boarded-out patients who were still under his supervision, Dr. Fraser's main interests were naturally transferred to institutions, and the progress and improvement which have taken place throughout Scottish asylums, particularly in the years during which he was associated with the Board of Lunacy, were in no small measure due to Dr. Fraser's help and enthusiastic advocacy.

The excellent relations he had with all superintendents of Scottish asylums, and his genuine interest in the welfare of the insane, made

him a welcome visitor to all institutions. His knowledge of asylum administration, the causes of mental disorders and the most appropriate and beneficent means of care and treatment made his advice most valuable, and of great advantage in the administrative working of Scottish institutions.

Part I.—Original Articles.

Laboratory Aids to Diagnosis in Mental Diseases. By P. K. McCOWAN, M.D., M.R.C.P., D.P.M., Assistant Medical Officer, West Park Mental Hospital, Epsom.

For some time past there has been an increasing use of laboratory methods in the diagnosis of mental disorders. The following aims at offering further proof of the undoubted value of this method of approach in such cases. There seems, however, to be a growing tendency, not devoid of danger, to ascribe diagnostic specificity to one or other of the many tests in use for such examinations. Although it is undoubtedly true that an exhaustive analysis of a spinal fluid may in many cases lead to a correct diagnosis of the clinical condition of the patient from whom the specimen has been taken, it only requires a study of the literature to show that none of the reactions or group of reactions obtained from the spinal fluid can be regarded as pathognomonic of any disease of the central nervous system. In this series of cases the Wassermann reaction in the serums, and most of the recognized reactions in the cerebro-spinal fluid, have been interpreted in conjunction with an exhaustive clinical examination of the patient, in an effort to arrive at an accurate diagnosis. One must not be misled into imagining that it is possible to centrifuge, as it were, a diagnosis from a spinal fluid alone. To do so is not scientific, but is rather a misuse of valuable scientific methods. The divorce of laboratory methods from clinical observation is, therefore, to be deprecated. The two are fundamentally complementary, and each will lose in value unless they remain so.

GENERAL NATURE OF MATERIAL AND METHOD OF DEALING WITH IT.

This consisted of 150 consecutive male cases admitted to Cane Hill Mental Hospital in 1921, and a similar number of female cases in 1923.

A Wassermann test was done on the blood-serum of every patient. This was repeated in all doubtful cases, whether the doubt arose from the finding of the test itself, or because of its conflicting with the clinical evidence. Lumbar puncture, with fluid examination, was done in all cases in which the serum Wassermann reaction was positive, and in those in which the history or the clinical findings in any way suggested the possibility of luetic infection. This is essential, as in syphilis of the central nervous system cases occur with a negative serum, and pronounced pathological changes in the cerebro-spinal fluid. The examination of the cerebro-spinal fluid included the Wassermann reaction, Pandy's test for excess of protein, a cell count, and, where considered advisable, a Lange goldsol test was also performed. The rate of flow and any after-effects were noted in all cases.

Examination of the cerebro-spinal fluid was done in 12 of the 14 male cases of dementia præcox, and in 2 of the 16 female cases, and also in some cases where it was of importance, apart from any suspicion of syphilis.

Autopsies were done on all available cases.

LABORATORY METHODS USED.

The Wassermann Reaction in the Cerebro-spinal Fluid and Serum.

The technique followed during this investigation was that of Candler and Mann (1). The test is on the lines of the original Wassermann reaction, and in the case of the cerebro-spinal fluid, full allowance is made regarding the warning of Plaut and others that up to 1 c.c. fluid may be necessary for a positive reaction in a few cases of definite general paralysis. These workers also have endeavoured to record the intensity of the reaction by definite figures, instead of the usual collection of plus and minus signs. Taking as a unit of complement a minimum complementary dose, the results are expressed as units of complement deviated by one cubic centimetre of serum of cerebro-spinal fluid; all the results noted in the investigations are recorded in this manner.

In doubtful cases without complete prevention of hæmolysis in any tube, but with retardation of hæmolysis in all, or in the upper dilutions, a provocative dose of .15 grm. of novarsenobillon was given, and the reaction again tested (Jarisch-Herxheimer reaction). These doubtful results have to be most carefully interpreted in conjunction with the clinical evidence for and against syphilis.

Few laboratory methods have aroused such a volume of literature during the past few years as has the Wassermann reaction. Its detractors are many, and in most instances they attempt to disprove it by the publishing of discordant results.

The usual method has been to send specimens of the same serum to different laboratories, and in many cases the results obtained have certainly been extraordinarily divergent. These divergencies are probably due to fluctuations in the sensitiveness of the Wassermann reaction, as Dreyer and Ward believe, or it may be due to alterations in the amount of Wassermann substance occurring in the specimen after its withdrawal from the patient. It is possible to alter the reaction of a serum by such methods as infection or by repeated cooling(2). That the former is the more likely explanation is shown by the works of Simons, Jones and Goddard(3). They found that when different workers used the same reagents, the percentage of divergences was very much lessened.

Protein Content of Cerebro-spinal Fluid.

In the course of this investigation at first various tests were employed, but later, owing to its simplicity and decisiveness, only Pandy's test was applied. In my experience this test gives exceedingly reliable results, and possesses a sensitiveness not shared by the others. The results obtained are recorded elsewhere, and it will be seen that although an increased globulin content is characteristic of parasymphilitic infections, a number of definitely non-specific cases, e.g., dementia præcox, gave protein reactions as intense as some cases of general paralysis. These reactions were associated with an atypical Lange colour change, a negative Wassermann and a negative lymphocytosis. The significance of such reactions is not clear at present, owing to our imperfect knowledge of the pathological changes in the cerebro-spinal fluid under different conditions.

PANDY'S TEST.—Place 1 c.c. of saturated solution of phenol in distilled water in a test-tube; add 1 drop of cerebro-spinal fluid. Normal fluid gives only the faintest opalescence, but in a fluid with globulin increase a smoke-like white cloud develops instantly.

Cytological Examination of Cerebro-spinal Fluid.

A Fuchs-Rosenthal counting chamber was used and quantitative estimations done. More than 10 cells per c.c. means positive lymphocytosis. The cells autolyze very quickly, so that the cell examination must be done soon after the withdrawal of the fluid. The great advantage of the cell and protein tests is that they are so simply carried out, and can be done immediately, giving valuable information before the result of the Wassermann reaction can be obtained.

The Colloidal Gold Reaction—Lange Goldsol Test.

During recent years much attention has been given to this reaction of the cerebro-spinal fluid, especially in relation to its diagnostic character in general paralysis of the insane. At first the great difficulty in the application of this test was the preparation of a suitable gold chloride reagent, but the preparation of this has now been reduced to a simple and most reliable process.

To 100 c.c. freshly distilled water add 1 c.c. potassium oxalate solution (1 *per cent.*) and boil; while boiling add 1 c.c. gold chloride solution (1 *per cent.*).

There are now many records of observations on the use of this test, and the consensus of opinion can be summed up in the following statement: The colour changes in the first five tubes are so constant in general paralysis that the term "paretic curve" is applied to such findings. Of less diagnostic value are the so-called cerebro-spinal syphilitic curves, where the colour changes are of less intensity than the paretic ones, and are most marked in the third to sixth tubes, 1-40 to 1-320. In various types of meningitis other than syphilitic the colour changes are at times more marked in the tubes with higher dilutions—1-320 to 1-2560.

There are some observations which tend to show that the paretic curve is not specific, but may be got in any parenchymatous involvement of the brain, *e.g.*, disseminated sclerosis (4), cerebral syphilis with marked mental symptoms (5), and a few other isolated cases.

The experience of some observers indicates that a positive Lange test may even be the first indication by laboratory tests of the pathological condition, and I found this to be the case in one of my series, *viz.*, male case 12. Also confirming the observations of other workers, I have noted atypical colour changes in non-specific mental cases. I cannot think that these are accidental, but rather that they have some significance, and with the standardization of the reagent, more refined technique, and more knowledge of the protein content of the cerebro-spinal fluid, the test may have wider application than for the diagnosis of general paralysis only. I cannot agree with some investigators that the admixture of blood does not render the test unreliable, for in my experience an obvious trace of blood in the cerebro-spinal fluid renders the result fallacious. Thus, in male case 12, a trace of blood gave complete decolorization in all tubes. The test is so very delicate that the blood in one fluid seems to have quite a different effect to blood in another with a different protein content. Beyond the fact that the reacting substance is associated with the protein fraction, or may be the property of the physical state of the protein, the explanation of the test is not yet known.

Mellanby and Amyl Davies (6) have recently put forward the suggestive hypothesis that the phenomena in the precipitation of colloidal gold by luetic fluids is due to a balanced reaction between two oppositely charged colloids. They state that all cerebro-spinal fluids contain pseudoglobulin and euglobulin, and that while the former prevents precipitation of colloidal gold, the latter causes it. They think that while the pseudoglobulin remains more or less constant in the various types of cerebro-spinal fluids, the euglobulin is increased in the sequence normal to tabetic, and tabetic to paretic. Euglobulin, being soluble in electrolytes, tends to come out of solution in dilution, with consequent increase of its precipitation action; pseudoglobulin, on the other hand, being soluble in water, dilution causes a decrease of its power to hold gold in solution. These two factors—amount of euglobulin present and the effect of dilution on the action of pseudoglobulin and euglobulin—explain the different curves given by the different cerebro-spinal fluids. Thus the tabetic curve is due to a small increase in euglobulin, which only shows itself in intermediate solutions, when its tendency to come out of solution is augmented to a maximal extent by dilution. In general paralysis, on the other hand, euglobulin is increased to such an extent that it overcomes the inhibitory effect of the pseudoglobulin, and precipitates colloidal gold in the first

dilution of the goldsol test. It is possible also that pseudoglobulin is increased as well as euglobulin in certain luetic conditions.

This hypothesis would explain why precipitation of neutral colloidal gold is always produced by paretic cerebro-spinal fluid, sometimes by tabetic fluid, but never by normal fluid, and also why some general paralytics give tabetic curves. All this, however, shows a hankering after the obvious, and it is quite possible that the important factor in the test is not the proteins themselves, but the substances adsorbed to them. There is some evidence to suggest that in a similar way it is such adsorbed substances that are the active agents in the Wassermann and other antigen phenomena.

ANALYSIS OF RESULTS OF LABORATORY EXAMINATIONS.

Pressure of Cerebro-spinal Fluid and After-Effects of Lumbar Puncture.

In all cases the rate of flow was noted, but this is increased in so many different conditions, and so much affected by emotion, that it cannot be regarded as a criterion of intrathecal pressure. Various observers have got extraordinarily different results in estimating the normal cerebro-spinal pressure, such widely divergent results as 50 and 450 mm. of water having been given. For one thing, no standard instrument has been used, and for another, incidental factors seem to have been rather neglected. Of the latter, gravity and venous pressure are probably the most important. Even coughing and the movements of respiration affect it. It is for such reasons that the rough indication given in routine lumbar puncture is of very little diagnostic significance. I found that the pressure as judged by rate of flow was increased in practically all cases of general paresis.

In no case did I get any serious after-effects, but 13 of the 75 cases punctured complained the following day of headache, pain in the back of neck, or at site of puncture. One man complained of weakness of his legs. None of these symptoms lasted more than thirty-six hours. One of these cases was a general paralytic, and he complained of a slight headache on awaking the following morning. All the patients were kept in bed for twenty-four hours after puncture, although in the case of paretics this scarcely seems necessary.

Chauffard and Boidin report in 223 punctures only 3 cases of vomiting, and no other ill-effects apart from slight headache (7). Boyd, in 120 asylum patients, recorded marked after-effects in 25 cases, and slighter sequelæ in a number more, and this though he kept his patients in bed for twenty-four hours after puncture.

The chief symptoms he observed were headache, giddiness, nausea and vomiting, and these appeared soon after patients got up. He got no after-effects with paretics (8). In over 1,000 cases Fildes had no serious after-effects (9).

It would appear that the more normal the patient, the more likely is he to suffer from after-effects. The uncomplaining attitude towards even repeated lumbar puncture, and the complete absence of any after-effects in the vast majority of general paretics, is almost diagnostic of the disease.

Incidence of Positive Wassermann Reaction in Serum.

Forty-four male cases, *i.e.*, 29·3 *per cent.*, and 14 female cases, *i.e.*, 9·3 *per cent.*, proved to be syphilitic.

J. C. Wootton in 1913 examined the sera of 177 consecutive male cases admitted to Cane Hill Mental Hospital, and got positive Wassermann reactions in 31 *per cent.*

As would be expected, figures obtained from mental patients show a much higher percentage of positive results than figures from the general, or hospital, population. Thus, Fildes got a positive Wassermann reaction in 10·3 *per cent.* of the male and 5·1 *per cent.* of the female patients of 19 years and upwards who visited the London Hospital for reasons quite unconnected with syphilis (10). Hess Thaysen, of Copenhagen, in a hospital for "the poorest classes" got a positive Wassermann in 83 out of 738 unselected cases, *i.e.*, 11 *per cent.* He found latent syphilis in 4·1 *per cent.* (11). Faber, who has examined for latent syphilis on an extensive scale, gives the figures as 1·7 *per cent.* of the general population. Taking the same criteria for deciding the presence of clinical syphilis, this series contained 3 male and 3 female cases of latent syphilis, *i.e.*, 2 *per cent.* of each.

Incidence of Positive Wassermann Reaction in Cerebro-spinal Fluid.

Of the 44 male cases of syphilis, 32 were suffering from general paralysis, that is, 21·3 *per cent.* of total; 3 had cerebro-spinal syphilis. Of the 14 female cases 8 were suffering from general paresis, *i.e.*, 5·3 *per cent.* There was no female case of cerebro-spinal syphilis. In 2 of the female cases the syphilis was congenital; one was a case of juvenile general paralysis, the other of engrafted hebephrenia. The others had no evidence of syphilitic involvement of the central nervous system, but although not the direct cause of their psychoses, owing to its devitalizing influence their syphilis may be regarded as probably an important, indirect, causal factor.

It was formerly held that only 3 to 4 *per cent.* of people infected with syphilis developed general paralysis or tabes, but the investigation by Mattauschek and Pilcz into the cases of over 4,000

Austrian officers who contracted syphilis between 1880 and 1900, and were well treated for same, showed that 7.5 *per cent.* of these men were dead by 1913 of general paralysis or tabes, while over 2 *per cent.* had died of cerebro-spinal syphilis (12).

The 40 paralytics may be grouped thus: (a) 31 gave a strong positive reaction in both serum and fluid; (b) 6 gave a stronger reaction in the serum than in the fluid; (c) 2 gave a stronger reaction in the fluid than in the serum, the latter being at first negative, and after a provocative dose of novarsenobillon, weakly positive in one case and persistently negative in the other case; (d) 1 gave a negative result in both fluid and serum, and after .15 grm. novarsenobillon a weak positive in the serum. This was a treated case of tabo-paresis.

Mott suggests that anomalous cases like that in group (c) may be due to actively developing spirochætes only existing in the brain in paralytics, and that not until complement-fixative has been formed by the reaction of the central nervous system to saturate the cerebro-spinal fluid will the blood be affected by the constant escape of fluid into the general lymph and blood circulation (13). It is extremely rare in general paralysis to get a positive Wassermann reaction in the serum and a negative in the fluid, as happened in the case in group (d). This patient had had intrathecal medication.

No case, apart from these 31 general paralytics, gave a positive Wassermann reaction in the fluid. Different workers place the percentage of positive Wassermann reactions in the serum at 96 to 99.5 for general paralysis.

For cerebro-spinal fluid in general paralysis Wassermann and Plaut got 95 *per cent.* positive reactions in the fluid, while Browning found it in 96 *per cent.*

Regarding the Wassermann reaction in the cerebro-spinal fluid in cerebral syphilis, different workers in the past have recorded very different results. With the original Wassermann technique a positive result was rare, and it was considered very doubtful if this could ever be got rid of, once present. Thus, Plaut only got a positive result in 6 *per cent.* of his cases. More delicate technique and larger quantities of fluid have given a much higher percentage. McIntosh and Fildes condemn the use of more than .2 c.c. of fluid, and say that non-specific results are got with larger quantities. Too little is yet known of the rationale of the Wassermann test to decide this point. At present it is always the last pathological sign to disappear, the order of going being endothelial cells, lymphocytes, protein, and lastly, if ever, the Wassermann.

The Relation of the Protein Content of the Cerebro-spinal Fluid to the Incidence of Wassermann Reaction and Pleocytosis.

The protein content of the cerebro-spinal fluid was markedly increased in 34 general paralytics. In the other 6 cases there was not the same increase, but even in these the excess was quite appreciable. One of the latter was a tabo-paralytic. The tabo-parietic with the negative Wassermann reaction in his fluid had marked excess of protein.

Two of the 3 cases of cerebral syphilis showed a slight increase. These 3 cases cannot be regarded as typical of cerebral syphilis, more especially as met with outside mental hospitals. Two of them were chronic cases, and the other had been well treated with salvarsan. A positive test, even though it may be very slight, can nearly always be demonstrated in the presence of pleocytosis in untreated cases of syphilis of the central nervous system. Thus, Carlill (14) only found one man out of several hundreds in which this was not the case. He found an excess of globulin in the absence of a lymphocytosis in only 2 of all his syphilitic cases. Like the similar case in this series both were cases of syphilitic cerebral arteritis.

Non-syphilitic cases which showed an increase were 2 cases of hebephrenic dementia præcox, 1 each of tubercular meningitis, sarcoma of brain, trypanosomiasis, gunshot wound of the head, and an infantile cerebropathy.

The Incidence of Pleocytosis in the Cerebro-spinal Fluid.

The normal number of cells in the cerebro-spinal fluid varies from one to six per cubic millimetre, and up to ten cannot be regarded as necessarily pathological. These are lymphocytes with an occasional endothelial cell. It is cases with slight increases that have to be carefully interpreted, and this can only be done in conjunction with the other changes, if any, in the cerebro-spinal fluid, and the changes usually found in the diseases under consideration.

In the 2 tabo-paralytics the count was 14 per c.mm., whereas in the other paretics it varied from 18 to 238. The number tends to fall as the disease progresses.

Meningeal changes are much less constant in tabes than in general paralysis. While the latter is a chronic meningo-encephalitis there may be no meningitis in tabes, the infection passing up the perivascular lymph-spaces and the lymph-spaces of the nerves to the posterior spinal protoneurons. It is doubtful if the spirochaetes themselves are present in the nervous tissue in tabes as in general paralysis. The experiments of Orr and Rows show that toxins generated outside the vertebral canal can pass up the nerves, and cause degeneration of the posterior columns only (15). These differences between general paralysis and tabes may account for the different results of treatment in the two diseases.

Only 1 of the 3 cerebral syphilitics had a lymphocytosis.

As there is no inflammation of the meninges in dementia præcox cell increase would not be expected, nor is it usually present. The largest number found in this series was 8—in male case 10, a hebephrenic. This case was unusual in showing a slight protein increase and a mid-zone Lange reaction, and in coming out under considerable pressure.

The alcoholic cases examined, including cases of Korsakow's

psychosis, showed no pathological changes in the cerebro-spinal fluid. An alcoholic meningitis with changes in the fluid is described (16).

Analysis of Results of Serum and Fluid Examinations.

Psychoses.	No.	Serum.			Cerebro-spinal fluid.						
		W. +	W. —	Per- cent- age +	W. +	W. —	Per- cent- age +	Cells.		Protein.	
								+	%	+	%
General paralysis	38	37	1	97	38	0	100	38	100	38	100
Tabo-paralysis	2	2	0	100	1	1	50	2	100	2	100
Cerebro-spinal syphilis	3	3	0	100	0	3	0	1	33'3	2	66'6
Non-syphilitic	257	15	242	5'8	—	—	—	—	—	—	—

Lange Goldsol Reaction in General Paralysis and other Diseases.

This test was performed in 60 cases. Thirty-seven of the 40 paretics gave the typical paretic curve. The other 3 all tended to the paretic curve; they did not show complete decolorization in any tube, but the colour changes were most marked in the first five or six tubes; one of these only gave a + 8 Wassermann reaction in his fluid, and the other 2 were tabo-paralytics.

The test was done in 2 of the cases of cerebral syphilis, and in these changes were got in the middle tubes, but no complete decolorization was obtained. Similar results are recorded by most observers. In one of the cases treatment cleared up this reaction, as it also did the protein and cell increases originally present.

The reaction was carried out on the fluid of 9 schizophrenics: 7 were quite normal; 2 showed slight atypical changes in the mid-zone, 1 being a hebephrenic, the other a catatonic. The latter's fluid was otherwise quite normal, whereas the former showed a slight protein excess, and 8 cells per c.mm.

The case of trypanosomiasis showed rapid, complete decolorization of all tubes.

The only other case which showed any change at all was the case of infantile cerebropathy previously mentioned as having a slight excess of protein. Here slight changes were obtained in the mid-zone.

The other 14 cases examined showed no changes in any tube. They were, in addition to the 5 schizophrenics already mentioned, 3 cases of alcoholic insanity, 2 of mania and 1 each of paraphrenia, insane amentia, confusional insanity and head injury.

ANALYSIS OF RESULTS OF CLINICAL EXAMINATION.

Physical Signs.

Of the 40 cases of general paralysis only 2 had normal knee-jerks on admission, in 20 they were exaggerated, usually on both sides, in 4 diminished and in 14 absent. The reflexes in this disease vary throughout the course of the illness, and it is probable that no case reaches a termination without the knee-jerks being abnormal at some period or other. In tabetic cases they are usually absent on one or both sides. In no case of general paralysis was an extensor plantar reflex elicited on admission. As often happens, however, several showed extensor responses during, and for a short period after, seizures. Mott says that the Babinski reflex is only present in 2 to 3 *per cent.* of general paralytics, and when found it strongly suggests pseudo-paralysis (13). The same variation is met with in the pupillary conditions. Thus, 17 general paralytics had Argyll-Robertson pupils; 17 showed sluggish reaction to light, rigidity to both light and convergence, irregularity or inequality of the pupils; 6 were normal, including consensual and sympathetic reflexes. As Bevan Lewis pointed out, the loss of the latter is often one of the earliest signs of general paralysis. The majority of cases with Argyll-Robertson phenomena had, in addition, irregularities and inequalities of the pupils. Paradoxical reaction was observed in a few cases. Nonne (17) has described a few cases of chronic alcoholism with Argyll-Robertson pupils in the absence of syphilis, and it is said to be occasionally present in disseminated sclerosis (18). All cases of general paralysis, with the exception of 4, showed tremor of the tongue with defect of articulation more or less marked. The lesion is cortico-bulbar, and is accompanied by a corresponding defect in the handwriting. This tremor of the tongue, with or without closely allied articulatory defects, is so common in the diseases with which general paralysis is apt to be confused that its diagnostic importance is much reduced. In many cases, however, it is all but pathognomonic. The tremor of the tongue was often of the "trombone" character described by Stoddart, and this, with the characteristic fibrillary tremor of all the muscles around the lips and nose, is very typical. Of the 26 general paralytics who have died, 22, *i.e.*, 84 *per cent.*, had one or more seizures during the course of their illness. Authorities vary in their figures of the incidence of seizures from 30 to 90 *per cent.* It is in the early stages of the disease, when correct diagnosis is so important, that these physical signs are slight or absent, and in many cases, even in conjunction with the mental state, they are quite insufficient to justify a diagnosis of general paralysis.

Nothing characteristic was found in the physical signs of the 3 cases of cerebral syphilis, but this alone was not sufficient to exclude a diagnosis of general paralysis.

The same applies to the cases of systemic syphilis. Over 50 *per cent.* had exaggerated knee-jerks, and 6 out of the 15 showed pupillary changes. None showed the Argyll-Robertson phenomena, but some were very myotic, and then it was very difficult to exclude this. Ten showed tremor of the tongue, and 4 of these had an articulation somewhat resembling the slurring of a general paralytic.

In the 15 cases of different forms of alcoholic psychoses, the knee-jerks were exaggerated in 11, absent in 1, and normal in 3; the pupils were normal in 9, sluggish, irregular or unequal in 6; there was tremor of the tongue in all, and an articulatory defect in 6.

In the 30 cases of dementia præcox the pupils were dilated in 12, unequal, sluggish or irregular in 4; the knee-jerks were exaggerated in 12, and diminished in 1. Two cases had mild seizures and another had slurring articulation. Meyer found the pupils dilated in 10 *per cent.* of cases of dementia præcox, and suggests inhibition from the cortex as a cause. Inequality and sluggish reaction to light were also noted fairly frequently. Irregular pupils with obliquely oval positions are very suggestive of dementia præcox. Kraepelin found knee-jerks exaggerated in 45 to 60 *per cent.* He also found seizures in 16 *per cent.* of his cases, though these were rarely of the typical paretic type, more commonly taking the form of fainting attacks and attacks of vertigo.

The Mental State in General Paralysis.

Of the 40 cases, 16 (40 *per cent.*) were of the classical exalted type. It is said that these cases are becoming less frequent, but it is possible that the decrease is partly a relative one, due to the more frequent recognition of the other types. In several of these 16 patients delusions of grandeur were not prominent, an unwarranted euphoria, very similar to that met with in other mental diseases, being the prominent symptom. In 13 patients dementia was the only marked mental feature; in 7 acute depression was present; 2 were of the confusional type, and the other 2 were tabo-paralytics.

Dementia is the most constant psychic phenomenon in general paralysis, and could be detected in all cases in this series. It has many points in which it differs from the dementia of cerebral syphilis. In the latter the dementia is usually partial, whereas in general paralysis there is a slow, insidious diminution of the whole intellectual life, with a profound alteration of the personality,

usually with disorientation for time and place, if at all advanced. The general paralytic loses his autocritical sense, and unlike the other, cannot give a good account of the course of his illness. In the remissions of general paralysis one can usually detect intellectual and affective deficiencies, whereas in those of cerebral syphilis the patient may appear quite normal. The latter disease proceeds by fits and starts, whereas the evolution of general paresis is more or less continuous. In general paralysis the psychic phenomena and convulsive seizures would appear to be due to the pullulation of the spirochætes. This causes a reaction on the part of the whole cortex, with the formation of antibodies antagonistic to the spirochætes. If Nature succeeds in this attempt at cure the symptoms subside, and a remission is the result. Some dementia, however, is usually left, and in addition some of the spirochætes are not killed, and being immune to the formed antibodies, may lie latent, probably in a granular form, or proceed to multiply and form toxins, and when this has reached a certain intensity a relapse occurs (19). This is in accordance with the view of Ehrlich that each relapse is due to the multiplication of spirochætes resistant to the antibodies already formed, and that these continue to multiply and form toxins until the tissues have found an efficient antibody.

The paralytic and demential phenomena are due to the destruction of nerve-cells and fibres, following the meningo-encephalitis and meningo-myelitis induced by the spirochætal toxins.

The cases met with in mental hospitals are usually past the prodromal stage, the stage in which clinical diagnosis is difficult and most important. Mott gives an extremely good description of this stage in *A System of Syphilis* (13). Ballet insists on the importance of recognizing a neurasthenic form of the prodromal stage (20).

It must not be forgotten that these early cases may exhibit psychical automatism, otherwise one may be misled by it into thinking that the patient cannot be demented. Lumbar puncture in such cases is all-important.

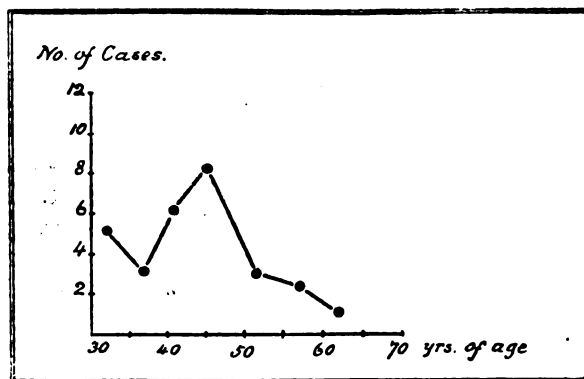
The Results Bearing on the Theory that there are Dermatotropic and Neurotropic Forms of Spirochæta pallida.

Many authorities suggest that there may be two different biological forms of the *Spirochæta pallida*, one dermatotropic, the other neurotropic. The latter is supposed to cause general paralysis and tabes, whereas other syphilitic diseases of the central nervous system and visceral syphilis are supposed to be due to the dermatotropic form acting through the general lymphatic system. One type of evidence deduced in favour of this theory takes the form of histories of several men contracting tabes or general paralysis from

the same source, and of their absence in certain communities where syphilis is rife. More convincing evidence that the organism is modified in these two diseases is provided by the animal experiments of Noguchi, Forster, Tomaszewski (21) and other workers. Levaditi and Marie have recently published further interesting details of their experiments on rabbits in this connection. What is probably the strongest evidence against the theory is the prevalence of syphilitic aortitis in general paralysis and tabes. When Fournier's parasyphilis was accepted this lesion was regarded as being of this nature, but as the organism can usually be isolated from the lesions *post-mortem* (22), the aortitis must be accepted as definitely due to the living treponema. This lesion differs from arterio-sclerosis of the aorta, which is also very common in all syphilitic affections, both in distribution and in the coat affected. Syphilitic aortitis forms puckered, often fleshy, patches bearing no relation to emergent vessels, usually transverse, and, as with the cerebral vessels, the disease first attacks the middle and outer coats, and the intimal changes are compensatory. The majority of the autopsies on the general paralytics of this series revealed this lesion. Typical skin-lesions were present in 6 of the non-paretic syphilitics, whereas none of the general paralytics showed any such lesions, but 2 had evidence of general infection in the nature of retino-choroiditis and leukoplakia respectively. In addition 2 of the female paralytics had had miscarriages. None of the autopsies on the general paralytics showed any prominent naked-eye lesions of the viscera, *e.g.*, liver, spleen, etc.

The Results of the Examination of the Age and Civil State in Syphilis.

Excluding the case of the juvenile general paralytic, who was only 14, in general paralysis the ages varied from 31 to 65, the most



usual age being from 30 to 50, as shown in the accompanying chart. These ages agree with those usually met with in this disease (13). Dr. Hirschmann, of Vienna, has recently made an interesting study of 84 cases of general paralysis which developed after the age of 60. In these old people he found the disease usually ran a slower course than in younger patients, and that the time since infection was usually above the average (23).

Thirty-two general paralytics were married and 8 single. Thirteen of the other syphilitics were married and 6 single.

In the 3 cases of cerebral syphilis the ages were 26, 50, and 67, and the disease had been contracted 1, 26 and 40 years prior to admission.

Duration of Illness and Time since Infection in General Paralysis.

The length of time since infection could not be accurately ascertained in the majority of cases. In no less than 14 of the cases of general paralysis was venereal disease denied, showing how utterly unreliable is the history of infection in such cases. As none of these people could be considered to be denying infection from ulterior motives, this suggests that the original symptoms were mild. In 4 cases the patient was too demented to give any reliable history. In those general paralytics who gave a history of infection the time varied from 8 to 33 years, the majority being from 10 to 20 years. This late development of general paralysis and tabes is of diagnostic importance, as the majority of other syphilitic diseases of the central nervous system appear in less than 6 years after infection—usually in 2 to 3 years. Cases are not even infrequent during the primary and early secondary stages, and cerebro-spinal fluid examination shows that it is frequently affected at this stage in the absence of symptoms. That the spirochæte itself is present in the fluid at this stage has been shown by inoculation experiments with rabbits. This is in accordance with the view that syphilis is a general organismal infection, with migration of the parasites to the perivascular lymphatics of the skin, mucous membranes, viscera, and meninges. It is much commoner, however, for cerebral syphilis to occur a long time after infection than for general paralysis and tabes to appear early.

The duration of the disease before admission in general paralysis is a very difficult point to decide with any accuracy. The only evidence is that given by the patient's friends, and this is often most unsatisfactory. The times given varied from 1 month to 5 years, the latter being a tabo-paralytic. The duration of the disease after certification can, however, be accurately estimated. Of the 32 male paretics, 4 were transferred to other hospitals and

1 discharged by operation of the law. Of the others, all but 3 have died, the average duration after certification being 10 months. The remaining 3 have now been certified over 2 years. So far only one female paretic has died. She was admitted *in extremis* and died in ten days. The demented cases and those which exhibit remissions tend to be more prolonged than the others.

The Results of the Wassermann Test in Dementia Præcox.

It is suggested by some authorities that dementia præcox is due to syphilis in the parents, and in support of this contention statistics are produced to show how frequently the stigmata of congenital syphilis are present in schizophrenic patients.

Klutscheff found 41.6 *per cent.* of 60 cases of dementia præcox had signs of hereditary syphilis. Pilcz reports tabes in 5 *per cent.* and general paralysis in 40 *per cent.* of the parents of his præcox patients. He also states that the brothers and sisters of these schizophrenics are often juvenile paralytics. Koenig thought that dementia præcox was commoner in the offspring of syphilitics.

Stinnes and Poltz think acquired syphilis may bring disease to an outbreak. This may have been the case in 1 of the 14 male cases in this series.

Kraepelin disagrees with the above theories, and he only found syphilis in 4-5 *per cent.* of the parents of these cases. This, of course, is not above what one would get in a similar investigation of unselected members of the community. He also failed to find that general paralytics begat schizophrenics. He suggests that if syphilis has any influence at all, it must be by injury to the germ-cells, as with chronic alcoholism.

The fathers of 2 of the female schizophrenics in this series had died of general paralysis. One of these patients showed definite clinical signs of congenital syphilis, with a positive Wassermann in her serum.

Teeth, tibiæ, face, eyes, including ophthalmoscopic examination, ears and testicles were examined, but no evidence of congenital syphilis was found in any other case. In all but 2 the serum Wassermann reaction was negative, and in the 15 fluids examined it was negative. Slight changes were found in 2 of these fluids, but nothing to suggest that these changes might be in any way due to syphilis.

Twenty successive cases of dementia præcox were similarly examined by Drs. Harper, Smith and Rae Gibson at Claybury Laboratory, and in every instance the result was negative (13).

McDonagh states that in congenital syphilis, if the Wassermann in the serum is positive during the first three months of life, even if the child is left untreated, the reaction tends to become negative about the age of puberty (24). A negative reaction in the serum of these cases could not, therefore, be taken as proof that congenital syphilis was absent.

The Wassermann Reaction in Manic-Depressive Insanity.

In 1 of the 35 male cases and 4 of the 48 female cases of manic-depressive insanity in this series a positive serum Wassermann reaction was got. Enough does not seem to be known of the causes of manic-depressive insanity to say that syphilis cannot be an exciting cause. Seven of the manic-depressives had their fluids examined and these were quite normal.

Especially on admission do some cases of manic-depressive insanity lead to a provisional diagnosis of general paralysis. Here the serum Wassermann reaction alone may be very misleading, and especially if it be positive is fluid examination imperative.

Kraepelin found syphilis in 8 per cent. of his male patients with manic-depressive insanity. Zeihen has described cases of periodic or circular psychoses, which he traces back to acquired or congenital syphilis, but Kraepelin holds that these are either manic-depressives with concomitant syphilis, or syphilitic psychoses with circular forms, and not cases of manic-depressive insanity due to syphilis.

ILLUSTRATIVE CASES.

The following cases illustrate the advantages of combined pathological and clinical examination:

Syphilitic meningitis in secondary syphilis, with recovery. Prior to laboratory investigation he was considered a case of malignant dementia præcox.

MALE CASE 1.—J. B—, æt. 26, single; admitted April 26, 1921. He had contracted syphilis twelve months previously, and had received treatment with salvarsan and mercury. On admission six months later his serum was positive 8 and his cerebro-spinal fluid showed 45 cells per c.mm., and the Lange gold test showed changes in tubes 2 to 8, none showing complete decolorization. There was only slight excess of protein, and his Wassermann was negative. His general health was fair, heart, kidneys and lungs showing nothing abnormal. His knee-jerks were exaggerated. Pupils slightly dilated, but otherwise normal. No tremor of his tongue, and his articulation was normal. Fundi normal, and sight unaffected. No focal symptoms. He complained of more or less constant headache, and had impulsive outbursts of violence, which bore a strong resemblance to attacks of *petit mal*. He was hallucinated and had delusions of sin. Hallucinations and delusions are uncommon in these cases, and insight is usually better than it was in this case. This latter fact made him object very strongly to treatment.

He was given twelve bi-weekly intramuscular injections of 3 grm. novarsenobillon in glucose and guaiacol. He also had daily inunctions with ung. hydrarg. mit. He had three such courses, with short intensive courses of potassium iodide for a fortnight after each course. His serum and cerebro-spinal fluid were normal after the first course, and have remained so since. He gradually improved mentally, his headache and depression being the first things to go. He continued to have occasional impulsive outbursts for a month, though at less frequent intervals.

Syphilitic cerebral arteritis. Without laboratory aid this case would have been diagnosed as one of senile dementia.

MALE CASE 52.—A. L—, æt. 67, widower; admitted July 4, 1921. On admission his mental state was one of depression, with somatopsychic delusions. He complained of headache which was not definitely localized, worse at night; he

*Results of Serum and Fluid Examination in Forty Cases of
General Paralysis.*

No. of case.	Serum W.	Cerebro-spinal fluid.					
		Rate of flow.	After-effects.	Protein.	Cells per c.mm.	W.	Lange.
Male.							
11	+40+	+	Nil	++	62	+40+	5555442100
12	Neg.*	—	"	++	14	Neg.	3222111000
17	+40+	+	"	++	37	+40+	5555554210
20	+40+	+	"	++	34	+40+	5555543310
24	+40+	+	"	++	59	+40+	5555432000
26	+40+	+	"	++	44	+40	5555543210
28	+40+	+	"	++	98	+40+	5555432100
41	+40+	+	"	++	42	+40+	5555542100
43	+40+	+	"	++	32	+40+	5544442210
46	+40	+—	"	++	18	+40+	5555543320
47	+40+	+	"	++	60	+40+	5555554210
48	+40+	Normal	"	+—	40	+40	5555543210
50	+40+	+	"	++	38	+40	5555553310
53	+40+	Normal	"	++	120	+40+	5555544200
72	+40+	+	"	++	62	+40+	5555553210
73	+40+	++	"	+—	32	+40	5555443210
74	+40	+—	"	++	22	+20	5554432100
77	+40+	++	Slight	++	45	+40+	5555544310
79	+40+	+	Nil	+—	108	+20	5444332210
86	+40+	+	"	++	46	+40+	5555554310
99	+40+	Normal	"	+—	24	+8	3322211000
108	+40+	+	"	++	100	+40+	55555544310
113	+40	Normal	"	++	82	+40+	5555421000
119	+40+	+	"	++	69	+40+	5555432000
122	+40+	—	"	++	46	+40+	5555532200
123	+40+	++	"	++	86	+40+	5555321100
127	+40+	+	"	+—	14	+8	3222211000
131	+40+	++	"	++	26	+40+	5555443100
140	+40+	+	"	++	105	+20	5555442210
143	+40+	++	"	++	238	+40+	5555554210
148	+40+	+	"	++	74	+44+	5555542100
149	Neg.*	+	"	++	22	+8	5555432110
Female							
11	+40+	+	Nil	++	71	+40+	5555433210
28	+40+	+	"	++	45	+40+	5555532100
67	+40+	Normal	"	++	36	+40+	5555543210
69	+40+	+	"	++	42	+40+	5555542100
80	+40+	+	"	++	14	+40+	5555442210
85	+40+	+	"	+—	24	+40+	5555533200
114	Neg.	Normal	"	++	104	+40+	5555443210
132	+40+	+	"	++	52	+40+	5555532200

* After .15 grm. novarsensobillon retardation of hæmolysis in top tubes.
+ = Increase. ++ = Marked increase. +— = Slight increase.

*Some Clinical Facts in Connection with Above Forty Cases of
General Paralysis.*

No.	Age.	Civil state.	Duration.	Time since infection.	Pupils.	K.-Ja.	Tremor and slurring.	Type.
Male.								
11	51	M.	6 months	30 years	A.R.	++	Present	Confusional.
12	52	M.	2 years	Denied	Sluggish, irregular and unequal	Absent	"	Taboparetic.
17	46	M.	3 months	"	Normal	+	"	Demented.
20	42	M.	2 years	"	A.R.	+	"	Exalted.
24	46	M.	6 months	33 years	"	Absent	"	"
26	34	S.	3 years	8 "	Unequal	"	"	Depressed.
28	33	M.	4 months	12 "	Rigid to L. and A.	+	"	"
41	40	M.	6 "	20 "	A.R.	Absent	"	Exalted.
43	58	W.	12 "	30 "	"	—	"	"
46	40	S.	2 "	15 "	"	Absent	"	Depressed.
47	37	M.	4 years	19 "	Normal	"	"	Exalted.
48	65	W.	6 months	30 "	A.R.	+	"	Depressed.
50	50	M.	1 month	30 "	Sluggish	—	"	Exalted.
53	46	M.	1 year	10 "	A.R.	+	"	Depressed.
72	54	M.	3 months*	11 "	Normal	+	"	Demented.
73	32	M.	3½ years	Denied	A.R.	+	"	"
74	47	S.	7 months	"	"	+	"	"
77	34	M.	1 month	"	Irregular	Normal	Absent	Exalted.
79	42	M.	1 year	?	"	"	Present	"
86	35	M.	2 years	10 years	Normal	—	"	Demented.
99	49	S.	1 month	20 "	Irregular	+	Absent	Depressed
108	31	M.	?	12 "	"	—	Present	Demented.
113	58	M.	1 month	30 "	Normal	Absent	"	Exalted.
119	38	M.	2 years	18 "	"	+	Absent	"
122	41	M.	1 year	8 "	Sluggish	Absent	Present	"
123	50	S.	2 months	Denied	"	+	"	Demented.
127	41	M.	5 years	"	"	Absent	"	Taboparetic.
131	54	M.	1 year	"	"	+	"	Exalted.
140	39	S.	?	15 years	A.R.	+	"	Demented.
143	36	M.	?	Denied	Sluggish	+	"	Demented.
148	42	S.	2 months	16 years	A.R.	Absent	"	Exalted.
149	42	M.	1 month	Denied	Irregular and unequal	+	"	"
Female.								
11	44	M.	1 week	23 years	Sluggish	Absent	No slurring	Confusional.
28	41	M.	2 months	Denied	Rigid	+	Present	Demented
67	47	W.	?	?	A.R.	Absent	"	"
69	58	M.	2 years	Denied	"	+	Absent	Exalted.
80	40	W.	?	"	"	Absent	Present	Demented.
85	44	M.	1 year	?	"	+	"	Depressed.
114	46	M.	?	?	Sluggish	+	"	Demented.
132	14	S.	2 years	14 years	A.R.	Absent	"	"

* This patient had hemiplegia 9 years ago.

had mild attacks of giddiness on assuming the erect posture. Insomnia for six months prior to admission. No history of seizures. He gave a history of syphilis contracted 40 years previously. He had clinical and physical signs of aortitis, with marked accentuation of the second sound in the vessels of the neck. His knee-jerks were exaggerated; his pupil reflexes were normal—right pupil dilated. There were syphilitic scars on both legs. No speech defects. His serum gave a 40+ Wassermann reaction. His cerebro-spinal fluid showed 6 cells per c.mm., a negative Wassermann, and a slight increase of protein. The Lange test gave a mid-zone reaction in the fourth to eighth tubes inclusive. This case showed the importance of multiple tests of the cerebro-spinal fluid.

The patient died April 1, 1922. Autopsy revealed extensive syphilitic arteritis of large and small cerebral vessels, corroborated by microscopical examination. There was no evidence of meningitis. The aorta was extensively affected, and the kidneys showed the changes of chronic nephritis.

This patient had no focal symptoms. These are often very late developments in these cases, though they may appear quite early. As Mott points out, there may be very extensive endarteritis obliterans without focal symptoms so long as thrombosis does not occur. In these cases general symptoms due to cerebral anæmia may arise owing to narrowing of lumen of vessels and interference with normal vasomotor control, whether by effect on muscular coat or on vasomotor nerves.

Tabo-paralysis with euphoria. This case illustrates the importance of not relying entirely upon laboratory findings.

MALE CASE 12.—H. M.—, æt. 53, married; admitted May 22, 1921. On January 8, 1919, he had what he describes as a fainting attack while boarding a tramcar. He was taken to St. George's Hospital, where he was under the care of Dr. Golla. He states that he had been quite well up to this time. Tabes dorsalis was diagnosed on the clinical symptoms, though his serum and cerebro-spinal fluid gave negative Wassermann reactions. He was given three intrathecal injections of mercurialized serum, and two intravenous injections of novarsenobillon. He was discharged on January 28, 1919, with his clinical symptoms still present.

On admission his ankle- and knee-jerks were absent, his pupils reacted sluggishly to light, he had well-marked rhombergism and tabetic gait, tremors of tongue and of muscles around mouth. His leg muscles were hypotonic. His articulation was slurring and typical of a general paralytic. Examination of his fundi revealed slight optic atrophy. Mott has pointed out how frequently the onset of optic atrophy in a tabetic is the precursor of general paralysis, and states that no less than 50 per cent. of tabo-paralytics have optic atrophy. He often found a history of mental stress in these cases, which he thought might account for the disease passing to the cerebral tissues. This patient had been much upset by the loss of his son, æt. 18, who had been killed flying in France in 1918. Visual hallucinations are common in paretics with optic atrophy, and this patient used to see his dead son come down from heaven at night. There was no history of lightning pains, ocular paralysis, or any visceral disturbances. No sensory abnormalities could be elicited apart from loss of pain-sense in his hypotonic calf-muscles, but this part of the examination was unsatisfactory, as is so frequent in mental cases. His serum and fluid Wassermans were negative. On this and on future occasions his fluid came out under greatly reduced pressure. He was given a provocative dose of .15 grm. novarsenobillon, and his blood and fluid again examined. His serum now showed retardation of hæmolysis in all dilutions—a weak positive reaction. His fluid reaction was again negative. It contained 14 cells per c.mm. and the protein was much increased. The Lange gave a modified paretic curve. On February 1, 1921, his cerebro-spinal fluid was again examined to see if his increasing dementia and seizures were associated with any changes in his fluid, but none were found. His left knee-jerk could now be faintly elicited, and his ataxic

gait was becoming shuffling and his rhombergism less. He had become much fatter. He died October 13, 1922, and autopsy revealed the typical brain changes of general paralysis.

General paralysis. This case shows the result of failing to treat cerebral syphilis in its early stages.

MALE CASE 72.—E. P. W—, æt. 54, married; admitted August 10, 1921. The patient contracted syphilis eleven years ago, and two years later had a syphilitic right hemiplegia with aphasia, which cleared up after a month in bed. No specific treatment was given. Seven years later, *i.e.*, two years ago, he had a similar attack which did not clear up. Again no specific treatment was given, and on admission the case had passed from an eminently curable form of disease into general paresis. His right arm and leg were very spastic, his left side less so. The man was quite unable to walk owing to his marked spasticity and his general tremulousness. His knee-jerks were very exaggerated, especially right, but no Babinski was elicited. His eyesight was poor, owing to optic atrophy. He had typical "trombone" tremor of the tongue, and his articulation was so slurring as to render him all but incoherent. He was very demented, and his wife said that he had had delusions of grandeur. These could not now be elicited. She had noticed the mental change three months before admission. His serum was 40+, his fluid Wassermann 40+, cells 62 per c.mm., protein much increased, and paretic curve with Lange test. Treatment with novarsenobillon, potassium iodide and mercury had very little effect on his physical condition and none on his mental. Mott states that it is rare for cerebral syphilis to be followed by general paralysis (13). In either case the prognosis was equally grave, for even if the case had been one of pseudo-general paresis it meant a generalized syphilitic infection of his cerebral vessels and the substance of his brain as well as of his membranes, so that he was permanently affected in body and mind. He died of septicæmia from carbuncles on April 1, 1922, and both macroscopic and microscopic examination of the brain revealed the changes typical of general paralysis.

General paralysis. This is an example of the type of case whose diagnosis can easily be missed without laboratory aids.

MALE CASE 99.—D. G—, æt. 49, single; admitted August 15, 1921. He gave a history of syphilis contracted twenty years ago, and on examination his serum was 40+. He was depressed on admission, and had paranoid delusions of persecution. His physical signs were not very marked. His left knee-jerk was normal and his right slightly exaggerated; his pupils were dilated and of irregular outline, but reacted well to light and accommodation. There was no tremor of his tongue, and his articulation was normal. He had aortitis. The changes in the cerebro-spinal fluid were comparatively mild. The Wassermann reaction was only positive 8; there were 24 cells per c.mm., and only a slight increase of protein. The Lange, however, gave typical paretic curve. He gradually improved, and two months after admission he appeared normal mentally apart from a certain lack of judgment and reasoning power. That this remission was not connected with any parallel change in his cerebro-spinal fluid was shown by a further examination on January 24, 1922, when it showed exactly the same changes as on admission, except that his cells were now 32 per c.mm. instead of 24.

General paralysis with serum Wassermann negative. This case shows the importance of not depending on the Wassermann reaction in the serum alone.

FEMALE CASE 114.—C. F—, æt. 46, married; admitted September 28, 1923. Her mental state was one of dementia, with emotional apathy and absence of auto-critical sense. Pupils small, irregular and unequal, reacting sluggishly to light and accommodation; knee-jerks exaggerated, plantar reflexes flexor; slight right-sided hemiplegia with faulty articulation; tremor of the tongue. She had had seven seizures in the eight months prior to admission. Her serum Wassermann was negative on three occasions. Her cerebro-spinal fluid gave a Wassermann 40+, marked excess of protein and 104 cells per c.mm.

Gunshot wound of head simulating general paralysis. This case is one of particular interest, for not only was he regarded as a general paralytic by several alienists of wide experience, but he was certified as such and was boarded by the Ministry of Pensions, and receives a pension on the grounds that he is suffering from general paralysis aggravated by military service.

MALE CASE 115.—G. F. J. S.—, æt. 42, married; admitted October 5, 1921. On admission he closely resembled the euphoric general paralytic. He had no delusions, however, unless his exaggerated opinions of his abilities could be regarded as such. Physical signs present were: Marked slurring of his articulation, with tremor of the tongue. Right pupil larger than the left, both regular, and react to light and accommodation. Knee-jerks much exaggerated, especially right; patellar and ankle clonus, and slight Babinski on right side; fine tremor of hands, and deep reflexes exaggerated in both arms, though more marked on right. Slight right-sided hemiplegia, including face and tongue, with wasting of right side of tongue. Abdominal and cremasteric reflexes could not be elicited; fundi normal. No history of fits. Had very severe headache for six months after demobilization, but never since.

His wife had three children, all healthy, aged 8 years, 2 years and 8 months respectively. No miscarriages.

He denied syphilis, but his serum gave a Wassermann reaction of 40+. It was on these facts and the history of his behaviour supplied by his wife that the aforesaid diagnosis was made. His army history, however, was most significant. He had received a gunshot wound of the head at the Hohenzollern Redoubt in July, 1917. He has a horizontal operation scar, 4 in. long, over his left parietal, 2 in. above attachment of ear to skull, and a small scar over his left eyebrow. Indentation and rough ledge on left parietal, but no bone missing. After being wounded he was paralysed down right side, including face, with complete loss of speech. He was sent to hospital at Havre, where a skiagram showed shrapnel, but he refused operation. After three months he was discharged to duty, though still mute and paralysed down right side. He had no power in his right arm, and his right leg was spastic. Six months later he was persuaded to go into hospital at Marseilles. There he had the shrapnel removed and next day his speech returned, and he states it was just as at present. There was doubtless a functional element in his mutism. His paralysis gradually improved till there was only slight weakness of arm and leg, but his face and tongue did not improve so much. He was in hospital six months, and was then sent to England and demobilized in July, 1918. A year later the paralysis returned and he was sent to Orpington Hospital, Kent; he was there five months, when he left of his own accord. He went back to his work as fish-hawker, but on information received from his wife he was taken to Greenwich Infirmary by the relieving officer and there certified. His wife states that he had been drinking a good deal since he came home from France, that he was excitable and of violent temper towards her, and that his talk and actions towards her were often immoral, even in front of the children. She could not keep him clean and tidy, and for the past three months he had got into the habit of following her about the house and streets, and she was afraid of him. It may be stated that so far he has shown no signs of irritability or violence, but his lying propensities show deficiency of moral sense.

Examination of his cerebro-spinal fluid negated the diagnosis of general paralysis. The Wassermann was negative, cells 4 per c.mm., and his Lange gold reaction was completely negative; there was a slight protein increase. His fluid came out under considerable pressure. There were no other signs of increased intra-cranial pressure, no headache or vomiting; his fundi were normal, with eyesight unaffected. There can be little doubt that this man's mental condition is entirely due to his wound, which must have affected his left motor area, chiefly at its lower end in the region of the tongue fibres. His handwriting is tremulous, but is not that of a general paralytic. The mental picture of instability which he presents is not uncommon in such head injuries, and a double lesion was not uncommon in such cases during the late war. His military papers bearing on the subject have unfortunately been lost, with the result that the history supplied by

himself was discredited by those who diagnosed his condition as general paralysis. It may be stated that re-examination of his fluid with precisely similar results was necessary to convince the aforesaid alienists.

Korsakow's psychosis with syphilis. Syphilis is not suggested as a cause of Korsakow's psychosis, nor is it necessary to do so in this case, as he gave a history of prolonged alcoholism. Neither was his condition due to extensive mercurialization for syphilis as in some of Dupré's cases.

MALE CASE 107.—W. F. S.—, æt. 46, single; admitted September 28, 1921. He had been under treatment for syphilis for three months at the Seamen's Hospital, Greenwich, fifteen years previously, and had taken no mercury since. His serum Wassermann was 40+. His pupils were irregular, but reacted to light and accommodation. His knee-jerks were exaggerated instead of being diminished, as is more usual. He had tremor of the hands and tongue, and his articulation was thick. His calf muscles were tender, and the skin of the leg below the knee showed impaired sensation, not amounting to anæsthesia. He had lateral nystagmus of both eyes, but no scotomata. He had physical and clinical signs of aortitis, and myocardial degeneration. His fundi were normal.

On admission he was completely disoriented for time, place, and identity of persons, and even after his confusion cleared up his orientation was poor. He had pseudo-remiscences, and showed the typical fabrication of this disease. He was most suggestible. His cerebro-spinal fluid was normal.

Alcoholic pseudo-paresis. A case which presented a mental picture indistinguishable from that of the classical type of general paralysis.

MALE CASE 61.—W. T.—, æt. 56, single; admitted July 25, 1921; coachman. He was euphoric, with delusions of grandeur, and wished to be discharged to marry his last employer, who was in love with him. His knee-jerks were exaggerated, his pharyngeal reflex absent, his pupils contracted and sluggish, there was marked tremor of his tongue, and his articulation was defective. He had a chronic ulcer on his right shin, and gave a history of shooting pains in the thigh, and of difficulty in micturition, due as a matter of fact to urethral stricture. He stated that he had had venereal disease thirty years previously, and thought that it was syphilis. So typical did the disease appear that, in spite of his age, he was certified as a general paralytic, without waiting for serum and fluid examination. These were examined twice, and on each occasion found to be normal, including Lange test on the cerebro-spinal fluid. He had a history of chronic alcoholism.

There seems little doubt that next to syphilis alcohol is the most dangerous, as it is the most prevalent, poison of the nervous system, though it can not multiply in the body like syphilis. It has a direct action on the nervous tissue and an indirect action by devitalizing the tissues, and making them more susceptible to the attacks of other poisons, such as syphilis and tubercle.

Manic-depressive insanity with syphilis. It required examination of the cerebro-spinal fluid in this case also to prove that his central nervous system was not affected by his syphilis.

MALE CASE 100.—F. J.—, æt. 42, single; admitted August 16, 1921. On admission he was euphoric, and showed the flight of ideas, increased psychomotor activity and mental excitement associated with manic states. He had a history of a previous attack of depression lasting two years. On the other hand his serum Wassermann reaction was 40+. He stated that he had pains around his

chest, shooting pains in his legs, gastric trouble, with severe vomiting, and difficulty in micturition. Examination of sensation suggested impairment of sensibility to light touch over abdomen. As in most mental conditions, subjective symptoms proved unreliable, and he had no objective signs of tabes. Thus, his knee and ankle-jerks were normal, and there was no hypotonus or inco-ordination. There was no marked tremor of his tongue, and his articulation was normal. The condition certainly pointed to mania, but one could not feel absolutely sure till examination showed his cerebro-spinal fluid to be perfectly normal. After twelve bi-weekly injections of .3 grm. of novarsenobillon, with mercury inunctions and a course of KI, his serum was again tested. It still gave 40+.

It would appear doubtful if it is of any use treating cases of long standing, where the only sign of syphilis is a positive Wassermann reaction. The weight of evidence seems to be against the view that a positive Wassermann reaction in the serum necessarily means living spirochætes in the body(25).

Dementia præcox in a congenital syphilitic. The diagnosis in this case lay between engrafted hebephrenia and juvenile general paralysis.

FEMALE CASE 47.—I. E. W.—, æt. 16, single; admitted June 25, 1923. Her father died of general paralysis. She had been backward at school, only reaching Standard IV at 14. After leaving school her mental capabilities were noticed to be becoming gradually less, and owing to various peculiarities of conduct she ultimately required certification. On admission she exhibited considerable dementia and was extremely childish and incontinent, well pleased with herself, and quite lacking in ambition. Her articulation was hesitant, slurring and extremely slow; her pupils were dilated, irregular and sluggish to light and accommodation, with consensual and sympathetic reflexes present; knee-jerks present; pharyngeal reflex absent. She had double chronic otitis media. Her serum was slightly but definitely positive, but her cerebro-spinal fluid was normal to all tests.

Trypanosomiasis. A case simulating general paralysis which contracted syphilis after treatment with soamin.

MALE CASE 34.—R. H.—, æt. 26, single; admitted June 14, 1921. He had contracted trypanosomiasis in Sierra Leone in 1918, with fever and urticaria of his legs and trunk, and much later, swelling of his cervical and inguinal glands. Parasites were recovered from his blood, and later from his cervical glands. He was given intramuscular injections of soamin, one grain every second day, and he continued this treatment himself. It is interesting to note that after a year of this arsenical treatment he contracted syphilis, with a well-formed chancre and a positive serum Wassermann. Salvarsan and mercury medication cleared this up, and on admission the only evidence was a small scar on his glans penis.

In January, 1921, he went to the Hospital for Tropical Diseases, Euston Road. The parasites were again found in his blood, and he was given antimony. While attending here the organism was found in his cerebro-spinal fluid, and shortly afterwards he was certified and sent to Cane Hill Mental Hospital.

On admission he was anæmic, but fairly well nourished, his heart, kidneys and lungs appeared healthy; spleen was palpable, no doubt largely due to malaria. His liver was not enlarged, no palpable glands in neck, and only a few small shotty glands in groin. The clinical signs of involvement of his central nervous system were not very marked. He complained of more or less continual, severe, diffuse headache. He was rather childishly petulant, and if annoyed had outbursts of obscenity. This latter habit ceased after six to eight weeks. His emotional reaction was increased, but his affective state on the whole was one of mild depression. He had very good insight, and was quite aware of the hopelessness of his condition. His lethargy was very mild at first, but in two or three months became very marked, but even then he could always be roused from his drowsy stupor to answer questions intelligently, and to do any simple act that was

requested of him. Even on admission, however, he had a strong disinclination to exertion, and would not occupy himself apart from occasional light reading. His father had noticed his tendency to drowsiness four months prior to his admission. His serum and fluid Wassermann reactions were negative. There was an excess of protein in his fluid, and the cells numbered 125 per c.mm. These cells were most characteristic. The chief cells were vacuolated endothelial cells, and there were several characteristic small cells with abundant deeply-staining granules. These cells are described by Sir Frederick Mott (26), and were demonstrated by him in this case.

His Lange reaction was most interesting, causing complete decolorization in all ten tubes. No trypanosomes were found in his blood or cerebro-spinal fluid, in spite of repeated examinations. His blood-films showed the remarkable clumping of the red blood-corpuscles described by Manson-Bahr (27).

His face was nearly expressionless, and became more so as the disease advanced, with his emotional facility suggesting lenticular involvement. He gradually developed a cerebellar gait, and shuffled about like an old man. The tremor of his tongue became worse, and his hands also became tremulous. He became very emaciated, with a dry, harsh skin. His fundi were examined on January 17, 1922, and "choked disc" found. His eyesight had been failing for a month, but he had not mentioned it to anyone, and as optic neuritis and atrophy are not usual in this disease his fundi had not been previously examined. On pointing at an object he pointed below and to left of it. It was now seven months since the organisms had been found in his cerebro-spinal fluid, and eleven months since his father had noticed that he was becoming lethargic. According to Low and Castellani the average duration of this stage is four to eight months, often less, and cases lasting over a year are rare. The patient died five weeks later, on February 23, 1922. Histological examination of his brain showed the changes typical of this disease.

This disease presents many resemblances to general paralysis. In both the nervous lesions may be preceded for a long time by a systemic infection. In both one of the chief features is a lymphocytic infiltration of the meninges and the perivascular lymphatic sheaths. In both the cerebro-spinal fluid shows a lymphocytosis. Mott points out that there is not the same neural degeneration in this disease, but rather a neural exhaustion (13), and I was much struck in this case with the preservation of memory and auto-critical sense, even into the advanced stages of the disease. This was quite unlike any advanced paretic. Polyadenitis is got in both. Unlike syphilitic meningo-encephalitis, there is no tendency to endarteritis or the formation of definite tumours.

Lymphosarcomata of brain. A case presenting many difficulties in diagnosis.

MALE CASE 133.—D. S.—, *at.* 47, widower; admitted November 15, 1921. He was admitted on a stretcher, and was obviously in a dying condition. He had a history of pleurisy (?) of five months' duration, and had been an in-patient at an infirmary for a month. He had been certified on account of his great restlessness, and rambling, incoherent talk. He had a history of fits for two months. Right base showed complete dullness, no air-entry and no adventitious sounds. Harsh breathing with some rhonchi at both apices; heart rapid and feeble. Tongue clean. Urine normal. Articulation normal. Knee-jerks exaggerated; plantar reflexes flexor. Sight fair, fundi could not be examined. Pupils dilated, but otherwise normal. Temperature 101° F. Severe cough, with dirty green sputum, containing small blood-clots. Serum gave negative Wassermann reaction. Cerebro-spinal fluid came out under considerable pressure, and it had a distinct red coloration. Wassermann was negative. Centrifuging had no appreciable

effect on the fluid, showing that hæmolysis had taken place, and that the blood present was not accidental. Cell-count gave 50 cells per c.mm., but these were difficult to count accurately owing to the considerable amount of *débris* present; they were lymphocytes. No red blood-corpuscles were seen. There was marked excess of protein.

The patient showed much clouding of consciousness, and was completely disoriented. He was quite irrational, and unable to answer any questions. There was some delirium, and he was very restless for the first twenty-four hours, after which he became moribund. He died on November 18, 1921, three days after admission.

Post-mortem.—Heart healthy; kidneys showed chronic interstitial nephritis. There was a large tumour in posterior mediastinum involving all mediastinal glands, with direct spread into middle and lower lobes of right lung and pericardium. No lung-tissue could be recognized in these lobes, and tumour was broken down in parts and very vascular. Meninges were somewhat œdematous, and underneath them numerous areas of softening and depression could be seen over convexity. There was considerable excess of cerebro-spinal fluid. Innumerable growths, varying in diameter from $\frac{1}{4}$ in. to 1 in., were scattered throughout the brain. There were at least fifty, the smaller ones being solid and very vascular, while the larger ones had broken down and formed cysts containing either blood or a straw-coloured fluid. There was no attempt at capsule-formation. The largest growths were in the basal ganglia of both sides and in the dentate nuclei of the cerebellum. One large one in the right optic thalamus had ruptured into the lateral ventricle, and no doubt accounted for many of the changes in the cerebro-spinal fluid. Sections of the primary and secondary growths were examined and proved to be small-celled sarcomas.

It was only after the *post-mortem* examination that the changes in the fluid were understood, *ante-mortem* the diagnosis being either tubercular meningitis secondary to phthisis, or cerebral tumour secondary to growth in mediastinum. The cerebro-spinal fluid findings tended to support the former diagnosis. The condition differed from xanthochromia in having a cellular increase, and in showing no spontaneous coagulation. In cerebral tumour the cell-count is usually normal, but may be increased, especially if the meninges are involved. The protein content varies much as the cell-count.

Summary of Conclusions.

1. Owing to the high incidence of syphilis in patients admitted to some mental hospitals—in this series 20 *per cent.*—serum Wasserman reactions should be tested as an invariable routine measure. This applies especially to male admissions, in whom, at 30 *per cent.*, the incidence is three times greater than in females.
2. For diagnosis of syphilis of the central nervous system serum results alone are insufficient, and in all syphilitics, certain or suspected, cerebro-spinal fluid examination is essential.
3. In suspected general paralysis neglect to examine the cerebro-spinal fluid is unpardonable. The mental and physical factors can be very deceptive, and serum examination alone may be more misleading than helpful. Thus, two cases in this series were

actually certified as suffering from general paralysis—diagnoses that proved to be wrong on subsequent fluid examination.

4. Early diagnosis and treatment of syphilis of the supporting and nutritional tissues of the central nervous system will often prevent the case passing into disease of the parenchymatous tissues, and thus changing from a curable into an incurable disease. Two very marked instances of this were found in the present series.

5. Fluid examination must consist of several tests if accurate diagnosis is to be arrived at, as no single reaction is pathognomonic of any particular disease of the central nervous system, syphilitic or otherwise. Thus, not even in general paralysis is a positive Wassermann reaction or a typical paretic gold curve invariably got in the cerebro-spinal fluid. Proof of this was not wanting in the present investigation.

6. In all cases where the clinical findings suggest syphilis one negative Wassermann reaction in the serum must not be regarded as final, but the examination must be repeated, preferably after a provocative dose of a salvarsan preparation. In this series two paretics gave positive Wassermann reactions after previous negative ones. Nor must it be forgotten that in rare cases the serum in general paralysis may be persistently negative, as in one case in this series.

7. More frequent examination of the cerebro-spinal fluid in mental patients will lead to the detection of causal factors which might otherwise be missed, *e.g.*, meningitis of various origins, cerebral tumours, trypanosomiasis, etc.

8. The diagnosis of syphilis of the central nervous system cannot be left to the pathologist alone. The clinical findings must also be taken into account. This is especially the case in tabetics, and for differential diagnosis between the various forms of syphilitic disease of the central nervous system. Although not emphasized in this paper, in which treatment has not been recorded, the last word often rests with the therapeutic test.

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The Work of the Belfast War Hospital (1917-1919).⁽¹⁾ By W. R. DAWSON, O.B.E., M.D., Lt.-Col.; Chief Medical Officer, Ministry of Home Affairs, Northern Ireland; late H.M. Inspector of Asylums, Ireland; late Specialist in Nerve Diseases to the Troops in Ireland, etc.

So much has been written on the nervous and mental troubles induced by the conditions of service in the Great War that the subject seems almost threadbare at this time of day. But as no special account has appeared, so far as I am aware, of the measures taken in Ireland for the treatment of those whose reason had become impaired in the course of war service, I venture to think that a short contribution to the subject, dealing more particularly with what was done locally, will not be inappropriate either to the place or the occasion.

When in the summer of 1915 Major Purser and myself were appointed by the War Office as specialists in nerve diseases to deal with cases occurring amongst the troops in Ireland, it speedily became evident to us that the accommodation for nervous and mental cases in the military hospitals (never very satisfactory) would be quite inadequate under war conditions, and that provision would have to be made for the treatment, not only of functional disorder, but also of mental disease. Cases of the former class were ultimately housed at Leopardstown Park, near Dublin, and at Craigavon, on the outskirts of Belfast, both of which institutions are still functioning; but the treatment of the mental cases presented some difficulty, owing, chiefly, to the generally overcrowded state of the Irish asylums. A beginning was, however, made in 1916, when the Committee of Management of the Richmond District Asylum (now known as the Grangegorman Mental Hospital) placed at the disposal of the War Office a small but well equipped separate block in the asylum grounds, designated thereafter the "Richmond War Hospital." Small as it was, this hospital, which was opened on June 16, 1916, did excellent and indeed indispensable work, thanks to the interest and support of Dr. Donelan, the Resident Medical Superintendent, and of the staff concerned in its management, but especially, I feel justified in saying, of the late Dr. M. J. Forde, at that time Senior Assistant Medical Officer in charge of the male department, who devoted himself *con amore* to looking after these cases. From the date of opening until December 23, 1919, when this war hospital was closed, the records show 362 admissions, of whom about two-thirds were discharged to their

(1) A paper read at the Annual Meeting held at Belfast, July 4, 1924.

friends or to ordinary military hospitals, two returned to duty, and only 31 were sent directly to civil asylums.

Useful as this institution proved, however, it was obviously too small to deal with all the mental cases occurring, and in October, 1916, a letter reached the Office of the Inspectors of Lunatics in Dublin from the Army Council, asking whether it would be possible to place at the disposal of the War Office a staffed and equipped asylum of about 500 beds, a number of asylums in Great Britain having been so handed over by transferring the inmates to other institutions. The difficulty in Ireland, however, lay in the already overcrowded condition of all the district asylums except three, none of which latter had any large number of vacant beds; and after full consideration the conclusion was reached that the only way in which the request of the Army Council could be acceded to was by removing the patients from the old Belfast Asylum in Grosvenor Road and disposing of them elsewhere. At that time, although the majority of the Belfast patients were accommodated in the new villa colony at Purdysburn, there were still about 400 in the old asylum, and the disposal of these was no easy matter. Nevertheless, the Committee of Management, the Resident Medical Superintendent (the late Lt.-Col. William Graham), and in fact everyone concerned, took up the proposal with an alacrity amounting to enthusiasm, and thanks to their energy and goodwill, and to the hearty co-operation of the Guardians and Union officials in providing for a large number of the patients in a separate department at the Belfast Union Workhouse, the Grosvenor Road Asylum was vacated on March 31, 1917, and the first military patients were admitted on May 15 in the same year. The Committee agreed to continue to manage the institution, and Dr. Graham was appointed the Officer Commanding with the rank of Lieutenant-Colonel, the other officers of the asylum, medical and lay (including Dr. S. J. Graham, the present R.M.S.), receiving appropriate Army rank. This arrangement continued for the first year, but after Colonel Graham's lamented death on November 5, 1917, it was thought better that the War Office should assume the entire control and responsibility, which arrangement came into force on April 1, 1918, and remained in operation until the hospital was finally closed on November 17, 1919. During this second period the hospital was officered and staffed by the Royal Army Medical Corps, the junior medical officers being for the most part men selected for previous experience in mental disease. To one of these, Capt. B. J. Alcock, I am greatly indebted for tabulating the greater part of the information on which this paper is based.

The total number of admissions to the hospital during its 2½ years

of existence was 1,215, including 74 transferred from the Richmond War Hospital. Of these 18 returned to duty, 865 were discharged to the care of their friends, transferred to ordinary naval and military hospitals, or to institutions other than asylums (a few being otherwise disposed of), 21 died, and 306 were sent to civil mental hospitals or to other war hospitals. This gives a percentage of approximately 72 either recovered fully or sufficiently improved to be treated as ordinary sane individuals by the end of the period of existence of the hospital, which, together with a death-rate of 1.6 *per cent.*, leaves only about 25 *per cent.* not recovered or convalescent on removal from the institution.

It may also be added that a portion of what had formerly been the Resident Medical Superintendent's house was set apart for the treatment of officers, and in this department, the only Army provision in Ireland for mentally affected officers, a further 40 cases were treated.

Before discharge the cases treated at the war hospital had, of course, to pass a Military Medical Board, and in Belfast it became the custom to keep an extra copy of the discharge papers (A.F.B. 179). These extra copies, together with a tabulated statistical summary, were, on the closing of the hospital, placed at my disposal by the Officer Commanding, Lt.-Col. Murphy, for which I am much indebted to him. I have also to express my thanks to the present military authorities for permission to use the material thus made available.

As I was President of nearly all the Invaliding Boards, I must assume a certain amount of responsibility for the diagnoses of the cases dealt with, which were arrived at after consultation in many instances with the medical officers who had had actual charge of the patients. A considerable number, however, were either convalescent or in a terminal condition on admission, and for these dependence had to be placed on the histories—in some cases very imperfect. It must also be remembered that the main object of these Boards was not scientific, but the assessment of disability with a view to pension and the disposal of such as were not yet fit to be discharged, so that any legitimate deductions from the information furnished by the discharge papers must be of a provisional and general character, and it is useless to attempt great statistical minuteness.

The number of cases whose discharge papers are available, leaving out a few which for one reason or another it has been thought better to omit, is 1,016. No officers are included, nor, of course, are the 21 cases which ended fatally. Taking first the varieties of mental abnormality, it must be premised that unless

there was good reason to the contrary, the diagnosis given by the earlier medical papers has generally been accepted, so that no attempt is made at a consistent classification. With this proviso, it is found that the form of mental disease most prevalent amongst the 1,016 cases was melancholia, which attacked no less than 260, or 25·5 *per cent.* Next came delusional insanity, with 12·7, mental deficiency (including a few cases of imbecility) with 12·2, and confusional insanity with 11·6 *per cent.* Dementia præcox yielded a little over 9 *per cent.*, mania 8·7, mental instability (a rather vague but useful denomination) nearly 5, the remainder being made up, in order of frequency, of dementia (including all forms not otherwise defined), general paralysis, exhaustion psychosis, alcoholic insanity, epilepsy (not including a few maniacal cases), moral imbecility, stupor, so called "shell-shock," and manic-depressive insanity. The small number of cases of dementia—39, or under 4 *per cent.*—is interesting in comparison with the prevalence of this form of insanity in ordinary civil mental hospitals, though, of course, it was to be expected. General paralysis yielded 25 cases (2·4 *per cent.*), and alcoholic insanity 18 (1·77 *per cent.*).

Taking the three years of working separately, it is found that in the period of 1917, 7½ months, during which the war hospital was open, the main peculiarity, as compared with the total period, was the small number of cases of dementia præcox—2 only, or 1·08 *per cent.* of the 184 cases of which the records are available. There was also only one case of general paralysis, and mental deficiency yielded 7 *per cent.* of the cases, as compared with over 12 *per cent.* for the whole period; while on the other hand the proportions of stupor, alcoholic insanity and "shell-shock" were higher. There were no cases of exhaustion psychosis. Melancholia headed the list with no less than 47·5 *per cent.*, but the other forms of war insanity presented no startling differences of proportion.

In the second year, 1918, melancholia continued to lead, though with a lower percentage of 25·6. The proportion of mental deficiency increased considerably, as did that of general paralysis and of epilepsy, while the number of cases of dementia præcox grew to 23, or 4·7 *per cent.*, as against 1 *per cent.* in the previous year. There were also 7 cases of moral imbecility, and exhaustion psychosis appeared with 16 cases (3·2 *per cent.*), as well as manic-depressive insanity with 6 cases, and 1 case of psychasthenia. This, being the last year of the war and the second of the hospital, may perhaps be taken as the nearest approach to a typical year so far as war insanity is concerned.

The last year of the war hospital, 1919, yielded 344 cases, and showed some marked changes in the relative prevalence of the

different forms of mental trouble, which is not surprising, seeing that in the above number is included the incurable or unfavourable residue from former years, rather than, probably, any considerable number of new cases. Consequently it is found that confusional insanity dropped from 15 to 5.5 *per cent.*, melancholia from 25.6 to 18 *per cent.*, and exhaustion psychosis from 3.2 to 1.7 *per cent.*, as compared with the preceding year, and there were no functional psychoses; while on the other hand dementia præcox now heads the list with 68 cases, or 19.7 *per cent.*, delusional insanity comes third, with 17.4 *per cent.*, instead of 9.6, and dementia, not otherwise qualified, has risen from 1.4 *per cent.* to 7.5. The cases of mental defect, however, dropped considerably, having presumably been weeded out in the previous years.

Turning now to the ætiological factors, let us first take that of age, noting that the ages were those at discharge, not on admission. As might have been expected, the largest proportion of cases, amounting to nearly half, lies between the ages of 20 and 30, the next, about one-third, between 30 and 40, a considerably smaller number between 40 and 50, and only a few below 20 or over 50. Taking the separate years, it is found that the number between 20 and 30 years of age increased from 1917 to 1918, but fell by about a fourth in 1919, while on the other hand the decade 30-40 yielded a constant number in the first two years, but rose in 1919 by about 40 *per cent.* The next decade, however, dropped in 1918, and showed but little change in 1919.

Coming now to other factors, it is perhaps scarcely worth mentioning that 176, or 17.3 *per cent.*, had either a family history of nervous or mental trouble, or were suffering from a form of disease which it was customary to consider "constitutional," since I am not certain that this point was always or even generally inquired into. The same probably applies to 64 cases in which there were previous mental attacks. On the other hand, much more reliance may be placed on factors directly connected with the war, although it would be idle to suppose that the figures about to be given represent the full numbers. Thus 870 patients, or 85.6 *per cent.*, are recorded as having been overcas, the majority in France, while only 132 are definitely noted as not having left the British Isles. Furthermore, 606, or some 60 *per cent.*, had been under fire, 180 (nearly 18 *per cent.*) had been wounded, 101 (10 *per cent.*) had been blown up, buried, or otherwise shell-shocked or had been torpedoed, 16 (1.57 *per cent.*) were gassed, and 18 (1.77 *per cent.*) were prisoners of war in Germany. These figures are not mutually exclusive, but they are sufficient to render it probable that a considerable amount of the insanity treated was to a greater or less

extent brought about by the casualties of active service. Of other factors it may be mentioned that there was a history of alcoholism in 12·2 *per cent.*, of syphilis in 3·6, of malaria in 5·7, and of other infective diseases in 4·2 *per cent.*

As between the three years, the proportion of overseas cases was highest in 1917 and lowest in 1918, while that of wounded and of ex-prisoners was highest in 1919. The highest proportion of patients who had been blown up, buried, torpedoed or otherwise injured by explosion occurred in 1917 (22·3 *per cent.*), dropped to 10 *per cent.* in 1918, and to a little over 3 *per cent.* in 1919, probably because the mental effects of such an experience are immediate, and more likely to be transient. The proportions of the few gassed cases practically did not differ in the three years.

Dealing, lastly, with the results of the cases, it is found that 478 recovered, a proportion of 47 *per cent.*, the highest rate, 61·4 *per cent.*, being in 1917, while, as might be expected, the lowest, 23·8, was in 1919. The number of those discharged as "improved" (which meant, in practically all cases, well enough to dispense with asylum treatment) was 26·9 *per cent.* Finally, at the time of discharge, 264, or 26 *per cent.*, remained unimproved, the number of unfavourable cases being small in the first two years, but rising in the third to 205, or 59·6 *per cent.*, owing to the gradual accumulation of such cases up to the time of evacuation of the hospital, when all that remained were transferred as "service patients" to civil asylums. For the most part their prospects of recovery were not bright. It will be seen that roughly three-fourths of all discharged were either recovered or so far improved as no longer to require asylum treatment, and the very favourable character of these results must be attributed to the facts that, speaking broadly, the patients were young, vigorous, picked men, that their mental breakdown was due to exceptionally severe stresses, and that they came early under treatment. It may be noted that the result did not appear to bear any relation to the severity of their experiences, some men who suffered much physically having had only the lighter forms of mental trouble, and made good recoveries.

I regret that the material was not available to deal in a similar manner with the Richmond War Hospital, but I hope that some of the medical officers of that institution, who, as I know, have at their disposal very full notes of these cases, may some day be able to give us an account of the good work done there. At all events, I think it has been shown that neither institution could easily have been dispensed with, and that both in their varying degrees have deserved well of the country, and of the brave men who sacrificed so much in defending it.

Encephalitis Lethargica.⁽¹⁾ By THOMAS SAXTY GOOD, O.B.E., M.A.Oxon., M.R.C.S., L.R.C.P., Medical Superintendent of Oxford County and City Mental Hospital; Physician-in-Charge, Clinic for Nervous Disorders, Radcliffe Infirmary, Oxford.

ENCEPHALITIS, a disease to be defined as any non-suppurative inflammation of the brain, has been recognized for many years. Crookshank (1) points out that clinical occurrences of the nature of what we now ascribe to encephalo-myelitis and encephalo-meningitis have been recorded for the last 450 years.

In 1918 attention was drawn to the occurrence, in various districts of this country, of a disease to which the name "encephalitis lethargica" was given. This form of encephalitis was characterized by the following :

- (1) Epidemic character.
- (2) Signs of brain infection by some toxin.
- (3) Lethargy varying in degree from slight drowsiness to complete stupor.
- (4) Focal symptoms, predominantly motor, the commonest being bilateral, nuclear, and radicular palsies of eye muscles, the third, fourth, fifth and sixth cranial nerves being the most commonly affected, but others also in some cases. Loss of normal facial innervation accompanying the emotions (Parkinson mask). Monoplegias, hemiplegias, diplegias, and choreic and athetoid disturbances. Sensory symptoms implying involvement of the cortex or corona radiata also met with.

Since 1920 various types and sub-types of encephalitis lethargica have been described by such authorities as C. von Economo (2), J. A. Sicard (3), L. Dimitz (4), W. M. Ellis (5), and Hesnard (6). The chief of these types are as follows :

(A) *Hyperkinetic-myelitic type* (C. von Economo).

Onset characterized by neuralgic pains. First stage delirium (often of occupation type, and resembling delirium tremens). Second or hyperkinetic stage, following in a few days, with myoclonia or choreic movements in the abdominal muscles, often one side only. Fibrillary twitchings present. Diaphragm may be involved. Fever persists. Patient often dies at this stage. Third stage, lethargy sets in.

(1) A paper read at a meeting of the Oxford Medical Society on Friday, May 9, 1924.

(B) *Tabetic type* (C. von Economo).

Sluggish reactions, myosis and inequality of the pupils, Argyll-Robertson sign, diminution or loss of knee and Achilles jerks.

(C) *Katatonie stupor type* (Hesnard).

Mental and physical sluggishness, impassivity simulating the clinical features of true katatonia, but often without the waxen flexibility of the latter.

(D) *Psycho-somnolent type* (Hesnard).

Lethargy and somnolence followed by excitement, complicated by hallucinations and mental confusion, with later a tendency to depression and absolute dementia.

(E) *Acute delirious type* (Hesnard).

(F) *Confusional and other psychotic types* (Hesnard).

It should be noted that Hesnard's types, c, d, e, f, do not differ in their physical symptoms from the types of von Economo and other observers, but appear different because of the emphasis that Hesnard lays on what may be termed psychological manifestations.

Many other references could be given, but these will serve to illustrate the point that the disease called encephalitis lethargica may be divided roughly into two main anatomical types: (1) that exhibiting primary lethargy with motor palsies, (2) that exhibiting states of delirium with myoclonic or choreic movements, followed by lethargy. As a temporary convenience I will refer to the former as the lethargic type, and to the latter as the delirious type. The point here raised is: "Are we justified in classifying these two types of encephalitis under the heading *lethargica*, or are there practical and theoretical reasons for distinguishing between them?"

There is no doubt that in many respects the two are alike. Thus, the descriptions of the morbid anatomy of all encephalitis with delirium and encephalitis with lethargy are identical, except that in encephalitis of the acute confusional type the seat of the greatest disorganization is in the cortical area, whilst the morbid change in encephalitis with lethargy is most marked in the stem and bulb and lenticular nuclei. In both types the cerebro-spinal fluid may contain lymphocytes and a trace of albumen in the earlier stages of the disease (7).

I would submit that all the evidence at present produced points to the fact that in both the primarily lethargic and primarily delirious types there is encephalitis. In the lethargic type there is motor inertia; therefore the term "encephalitis lethargica" denotes a primary involvement of the large motor cells of the bulb and stem, and "lethargica" is a fitting term for both the physical and mental

symptoms. But in the other type, delirium, restlessness and motor irregularities are not well defined by the term "*lethargica*," for the primary clinical symptoms are the exact reverse of what is understood by this term. I submit therefore that the delirious type might perhaps better be designated *encephalitis agitans*, and I venture to make this suggestion because I propose to show that there is some reason for believing that in the early or preliminary stages the two types differ in a very important respect, and are susceptible to different treatment.

I am aware that in venturing to criticize a terminology that has been apparently accepted as adequate by a number of distinguished neurologists, I may be attempting a task which is too great for my capabilities, and that the evidence I bring forward may be insufficiently supported by fact. As, however, my objects are to promote discussion and to try and approach the subject from both a physical and psychological point of view in the hope that some light may be thrown on this serious disease, I will make no further apology, but proceed with my justification for my temerity.

As far as I am aware, the name *lethargica* was first used in the epidemic of 1918. Since that year a large mass of data has been collected, and much research expended to ascertain the nature and cause of the illness. As that epidemic, which was of the *lethargic* or "sleeping-sickness" type, appears to have given impetus to investigators, it would be natural to expect that attempts to find a pathogenic organism would be greatly stimulated; also, as the physical symptoms in the *lethargic* type of onset are much more striking than the mental symptoms, it would be natural that a *physical* basis for the disease and a *physical* origin be looked for in its *ætiology*. That there is a physical basis is not to be denied; but experience, both previous and subsequent to the 1918 outbreak, has shown (*a*) that the disease is not necessarily epidemic, but that cases clinically indistinguishable by their symptoms occur without any epidemic grouping; and (*b*) that while the symptoms are sometimes in their onset primarily motor, in other cases they are primarily psychic. Hence the observer wonders whether, in the causation of the disease, psychological states may not have some bearing from a selective point of view. Is it not possible that, in the confusional types recorded, prolonged mental strain has so affected and weakened the resistive power of the nerve-cells of the cortex, that, on the invasion of the blood-stream by toxins, these cells are most affected because of their exhausted condition or lowered resistance caused by this strain? I personally believe that this is a possibility, and my reasons for this belief I now attempt to set forth.

I wish here to state that I do not consider the evidence I produce in any way conclusive. It is only suggestive, and requires much verification.

In attempting to support this hypothesis, one must take into consideration bacteriological, anatomical, physiological and psychological evidence, and consider carefully clinical experience.

As regards bacteriological findings, I believe these may be condensed as follows: Many observers have verified that the disease encephalitis lethargica is toxic. But, though organisms have been found, none are pathognomonic. A virus has been obtained which has, by inoculation, produced the disease in animals. Sera have been prepared which have apparently beneficial effect when injected in patients suffering from the disease.

I admit to no great knowledge of the science of bacteriology, and therefore my data may be incomplete, but so far as I know, no one has yet discovered why in different cases different areas of the brain are affected. The anatomy of the blood and lymph circulation may be a factor in determining localization, but it is difficult to understand how, when these circulations are affected by a toxin, their anatomy can limit that toxin to a given area unless that area had its resistance lowered by some other factor.

I believe that factor is to be found in the brain-cells themselves, and that in certain cells a bio-chemical change is produced by combined physiological and psychological stimuli. These changes lower the resistance in certain brain-cells of the cortex, and predispose this area to attack by the toxin.

I consider that my hypothesis is supported by the following data:

Tredgold (8) states in regard to nerve-cells of the brain cortex: "As compared with the nerve-cells of the healthy brain, those of the ament are characterized by the following conditions: (1) Numerical deficiency, (2) irregular arrangement, (3) imperfect development of individual cells; and on the whole it may be stated that the amount of change discoverable by the microscope is directly proportionate to the degree of mental deficiency present during life."

Bolton (9) comes to the conclusion that "the cellular elements throughout the cortex cerebri which are specially concerned in the performance of associational functions are those of the pyramidal layer of the nerve-cells; the great anterior centre of association of Flechsig in the prefrontal regions is under-developed, on the one hand, in all grades of primary mental deficiency, and, on the other, undergoes primary atrophy *pari passu* with the development of dementia. This region of the cerebrum is therefore concerned

with the performance of the highest co-ordinating and associational processes of mind."

Both these authorities, therefore, consider that the cortical layer of the pyramidal cells has definite psychic functions. This opinion is supported by others. In a recent paper by Henry Cotton (10), great emphasis is laid on the toxæmic factor in the functional psychoses. In fact he includes manic-depressive insanity, dementia præcox, paranoid condition, psycho-neuroses and toxic psychoses as disorders which are due, in his opinion, to various forms of chronic sepsis. As he includes toxic psychoses, and as acute confusion is a psychic manifestation of one form of encephalitis, he therefore implies that acute psychoses may be caused by a chronic sepsis. Cotton does not appear, from the general trend of his paper, to believe that psychological methods can in any way alleviate or improve these conditions, though he admits that "if any factor, either psychical or mental, becomes operative in the mechanism whereby the immunity is lowered, the infection immediately becomes more active and virulent." Thus by admitted mental factors this latter statement would appear rather contradictory to the general attitude of his paper, for if mental (emotional) factors lower the immunity, it seems to follow that the removal of mental factors must increase it. The point I wish to emphasize here is that although Cotton does not appear to attach great importance to psychological manifestations as having much bearing from a treatment point of view, still he admits in his paper that the mental factor becoming operative lowers the immunity. This admission would appear to support my argument that there are two factors to be considered—one the psychological, and the other the physical. He over-emphasizes the physical, but admits both. Personally, I believe that it is only by giving equal attention to both sides of the question that we can possibly hope to arrive at any solution to some of our difficulties. Cotton's paper does not appear to controvert Tredgold's and Bolton's hypothesis, as they only state that in their opinion certain cell elements have psychic functions, and if their contention is correct, it appears allowable to deduce two facts, namely, that in amentia there are fewer cortical cells, and that in confusional states and dementia these cells are markedly diseased. Admitting, then, that cortical cells have a mental function, we are forced to believe that they must be affected by mental stimuli (emotions) ⁽²⁾, and that these emotional stimuli in their action must cause changes in the chromatic part of the cell. It follows that the cell will become exhausted in proportion to the strength and duration of the stimuli. That the cortical layer has control over the deeper cells is an accepted fact, and if we can

admit that these controlling cortical cells have mental activities, then it becomes a fact also that if these cells are disorganized in their function, their disordered condition would be shown by (a) alterations in mentality, (b) lack of control over the motor elements.

That alterations in mentality are associated with degenerative or developmental cellular anomalies in the cortex is proved in all cases dying with mental symptoms. Thus, tabo-paresis (*i.e.*, chronic encephalitis due to syphilis) shows marked cellular changes in the cortical layer. Again, the clinical symptoms of confusional states of an acute nature have already been discussed, and I have attempted to show that here also the psychic confusional symptoms are due to cellular changes. Thus mental confusion must always be associated with cellular changes (chromatic elements). It must follow, if this statement is correct, that confusion will subside as and if the cells recover, and it is generally recognized that in the cell the chromatic elements *can* be replaced unless the nucleus is destroyed. As confusion is always accompanied by some degree of encephalitis, and as it is an accepted fact that the cortex cells control the deeper layers, or, in other words, that motor movements are directed and controlled by mind, one would expect that movement would be affected by disordered function of the upper controlling elements. Therefore it is understandable why deliria are invariably accompanied by restlessness. In other words, the discharge from the motor cells is continuous until the cell, because uncontrolled, becomes exhausted; and further, the movements are more pronounced in proportion to the disease or degeneration of the upper elements. Moreover, the stuporose torpor is accounted for by disease of the deeper cells, and probably is also to some extent indicative of the amount of disease present.

Further points that should be borne in mind in considering the functions of the cells of the different layers of the brain are:

1. Bevan Lewis (11) found neuroblastic cells in the second and third layers of the cerebral cortex of the ape. These cells appear to be no different in a morphological sense from the cells described by Tredgold in cases of amentia.

2. Levi (12) found karyokinesis in the small and medium pyramids in the cortex of the guinea-pig. He could not find it in the very highly differentiated cell of the cord and brain, such as the large motor cells. He states he has never observed complete karyokinesis, though he considers it can occur. He thinks that very highly differentiated nerve-cells when affected by a stimulus undergo degeneration instead of attempting to multiply.

These two points further emphasize (a) the probability that one great function of the smaller and middle pyramids is mind, and (b) that these cells do apparently have a higher potentiality to recover than the more differentiated motor cells. The points that have now been brought forward are the historical and the clinical types of the disease, and the question as to whether the disease is always rightly described by the term "encephalitis lethargica." Certain evidence has been produced from the anatomical, physiological, psychological and clinical aspects to support the following hypotheses:

(1) That there are two main types of toxæmic encephalitis, characterized by different mental and bodily symptoms; and that these symptoms are the signs of the different areas of the brain involved.

(2) That in both types the toxæmic theory is the correct one, and that therefore, from a bacteriological point of view, the disease is the same, but is influenced selectively by changes in cell metabolism.

(3) That though each type may at the onset be localized in its own characteristic area, yet, if the disease persists, all parts of the brain will be affected.

(4) That if the hypothesis of two distinct types of encephalitis lethargica is borne out by facts, it is important for the physician to attempt to form an opinion from the symptoms⁽³⁾ as to which area of the brain is involved, and this for the following reasons:

(a) *From the prophylactic point of view*: If we find that in the confusional type there is always a prolonged period of worry and anxiety (usually due to difficulties in regard to money, or to sex in the widest meaning of the term), then it ought to be possible to treat these cases in the earliest stages by combined psychological and physical means in such a way as to prevent the delirious type from developing. For once it has developed, it is usually necessary to certify the patient.

(b) *From a social point of view* it is worth while to do all that is possible to prevent certification, for, do what we will, certification leaves a permanent social stigma. It is rarely necessary to certify the lethargic type, but if the symptoms peculiar to the onset of the delirious type were well recognized, a great deal might be done to prevent its reaching a certifiable stage.

(c) *From the point of view of treatment*, if the delirious type is clearly recognized as a distinct variant, due very

possibly to exhaustion of cortical cells brought about by anxiety, then sedatives powerful enough to give complete rest to these brain-cells are of value; for they will not only give the cortical cells a chance to recover, but they will act on the lower cells indirectly through the upper cells, and check motor symptoms.

Having put forth certain theories, and attempted to support them by adducing evidence culled from the work of other neurologists, I wish now in conclusion to put before you the results of some of my own clinical and laboratory experience as a psychiatrist.

It is important to investigate the mental and physical histories of the patients who come before us, for the reason that one would expect to find that in cases of encephalitis with lethargy, physical factors such as bodily fatigue and physical trauma would predominate, and that the mental life of the patient would at the onset be little or not at all affected. As the symptoms, except the drowsiness, are mainly physical, one would expect the physical causation to preponderate, whereas in the onset of the delirious type the mental factors would be more prominent, and one would find in the patient's history certain psychological factors of an unpleasant nature, which have tended to predispose from a selective point the future development of the disease if the invasion of the toxin occurs. I think perhaps a short account of four recent cases will illustrate this point:

CASE 1.—Boy, at. 14½ (lethargic type).

Past history.—Had been a normal, healthy boy till five weeks ago; always at work, cheerful. Five weeks ago became drowsy, always falling asleep or dozing, could not do his work, complained of seeing things, saw double, but was, according to friends, quite normal if roused. Only seemed slow and lacking in interest.

Examination.—Boy well developed. Had a fixed smile, and face did not alter much even when an emotion was aroused. This most marked when he was told he had better be admitted to hospital as he was ill. Tears came into his eyes; he said he did not want to leave home; but although he was reasonable, and came quietly into hospital on explanation that he was ill, the "silly smile" was still present, and his face otherwise remained expressionless. Pupils sluggish, rather dilated, and the right rather larger. He had diplopia and some ptosis, slight right facial paresis. No Rombergism. Tongue protruded slightly to right. Left arm and leg distinctly weaker than right. Deep reflexes brisk. Plantar left was indefinite. Right flexor. Oppenheimer left once extensor, but could afterwards get no response. Right no response. Abdominals normal. Mentally drowsy, slow, but quite coherent and no signs of any confusion. Complained of head feeling heavy. Had a severe cold just before onset.

CASE 2.—Woman, at. 36 (lethargic type).

History.—Two months previously had had influenza. By her own statement had seen no doctor at the time, but kept about. Had dull headache; could hardly keep awake. Saw badly, *i.e.*, mistily and occasionally double; noticed nothing more. Was able to keep at work till two months later, but lacked energy and felt ill. Two months ago noticed that her left arm and leg had become weak, especially in lifting anything and in using her wrist. Her toe caught in slight obstructions on the ground. Said that her left shoulder was wasted. Had no worry.

Examination.—Quite collected. Looked heavy about the eyes. Face looked emotionless; pupils slightly dilated, diplopia on rotation to left. Tongue deviated

slightly to left. There was weakness of left shoulder, which dropped slightly, and some wasting of the shoulder girdle. Trapezius, deltoid, supra- and infra-spinatus muscles affected. There was weakness generally of the arm, deep reflexes were present, and there was reaction in the biceps jerk on tapping the wrist tendons. The reflexes in the leg were increased. No clonus, but Babinski present on this side and Oppenheim. The left arm and leg appeared normal. The electrical reactions of the wasted muscles were reported as normal. There appeared no alteration in mentality.

CASE 3.—*Boy, æt. 17½ (delirious type).*

History.—Had been worrying over school responsibilities. Sexual problems of puberty. Was said to have been delicate as a child and at first had not been allowed to play games, though afterwards developed in this direction. Was always thought "rather nervous." Two months ago had influenza; was ill for about three weeks. Recovered, then had slight attack which was designated acute neurasthenia, when he appeared worried, and is said to have stated he was a failure. Rapidly recovered, and then appeared quite normal except that he was for a time excited and unduly talkative and restless. About a week before present attack broke out into an erythematous rash (diagnosed as German measles). Seemed to have recovered, but began worrying and became confused at times. Before out of quarantine this confusion rapidly increased. Marked insomnia, great motor restlessness and continual repetition that he was to blame—that it was all his own fault.

Examination.—When examined showed the greatest confusion; could not be kept to one subject for more than a few moments. Appeared to recognize people momentarily, but rapidly became delirious and confused, constantly repeating, "Yes, that is so; I must find out." The pupils were widely dilated and sluggish. There was uniform and almost continuous myoclonic spasm of right arm and leg. The restlessness was so great that reflexes could not be tested.

CASE 4.—*Man, æt. 28, undergraduate (delirious type).*

History.—Had had a nervous attack when 14. Had been through the war. Had matured. Had been worrying over money matters, and also had a phobia about dirt. Ten days previously had influenza, followed by abortive attack which appeared to be apical pneumonia. Was normal mentally till the pneumonia began to subside, when he suddenly became delirious.

Examination.—The delirium was very confusional, and appeared always after sleep, which was only obtained by drugs. He was intensely restless. Pupils sluggish, had complained of headache and misty vision. Reflexes were normal, no signs of rigidity or paresis. There had been great constipation. Patient's attention could be held for a certain period, but the confusion returned if attention was distracted.

These four cases, which were seen within one week, had no previous contagious history, but all had influenza. All, in my opinion, were cases of encephalitis. Two were of the lethargic type, two of the delirious and confusional. In the lethargic cases mental history had no obvious bearing. In both confusional cases there was a positive history of emotional stress. In my experience all confusional states have this history of emotional repression, usually in connection with money or sexual matters.

POST-MORTEM FINDINGS.

All the cases dying of encephalitis which have come under my personal notice have been of the delirious confusional type, with intense motor restlessness, with or without choreic or myoclonic movements. The *post-mortem* findings have been as follows:

Pia arachnoid slightly milky, with in some cases a certain bulbous œdema along the edges of the longitudinal fissure; in one case the bullæ were large and contained

clear yellow serum. The brain generally was bright pink in colour, with petechial hæmorrhages and general engorgement. Microscopic examination showed engorged, thrombosed and hyaline vessels and migration of endothelial cells, the lymph-spaces of vessels containing many endothelial or lymphoid cells. These were present also in the brain substance, in the pericellar lymph-spaces, and in many cases had invaded the nerve-cells themselves, Nissl bodies being disintegrated, dendrites degenerated. Nuclei and nucleoli in many instances were either degenerated or had disappeared, the cells that once contained them being of the "ghost type." The method of staining was Ford Robertson's methyl violet and Missl's toluidin blue. The sections were usually taken from the apex of the ascending frontal convolutions, though other regions of the brain were examined. In only one case was bacteriological examination made, and in this case no micro-organism was found. At the meeting of this society last year two sections of the cortex were shown in which there was marked encephalitis of this confusional type. One was apparently secondary to tubercular meningitis, whilst the other showed no definite meningeal infection; but the cortical encephalitic lesions were well marked in both cases, especially in the smaller and medium pyramids. In both these cases there had been clinically intense motor restlessness, confusion, slight hemiplegic attacks and ocular symptoms.

I have at this hospital recognized only one case of the lethargic type of this illness, but it is highly probable that cases occurred and were missed previous to 1918. I had, however, recognized and examined cases of the delirious type previous to that date. It is probable in a hospital dealing with mental disorders that the drowsy type is seldom admitted in the earlier stage, for the reason that the lethargy is diagnosed as illness, and as the patients are quiet, nobody thinks them insane, whereas in the delirious onset the mental confusion often associated with hallucinations is alarming to both relatives and medical men, and the case is certified at once. All very sudden attacks are probably of the delirious nature.

To sum up, the truth about encephalitis appears to be that it is due to an acute toxæmia. The selective factor may be either physical or psychological stresses. It is only by careful investigation by every method, both physical and psychological, that we can hope to arrive at a correct interpretation of the values of the predisposing factors—that is to say, combined team work is essential in our investigations. In the past there has been too much severance between the investigators at the general hospital and the mental hospital. As the training of the medical profession has been in the past mainly along physical lines, the trend of investigation has naturally been predominantly physical, and therefore, though mind has been accepted as existing as part of the general make-up of the individual, it is only quite recently that the workings of the mind have been studied with what one might term a psychological technique. The adherents of this technique have, perhaps, by over-emphasizing their theories, brought upon themselves and their methods a certain measure of incredulity and opprobrium such as is often caused by the over-enthusiasm of the adherents of any new method.

The ultimate solution of the problem of psycho-neuroses and psychoses is only to be found by investigating their manifold phenomena by both psychological and physical technique, and if in this paper I have been able to throw any light on the disease of encephalitis by dividing it according to the predominantly physical or predominantly mental manifestations into two types, and if I have established my hypothesis that emotional stresses are the predisposing factors in the confusional type, it is a proof that defective ideation, which is confusion, always accompanies as a symptom, and is always diagnostic of, the pathological changes in the cortical cells, and that the cause of the predisposing factor is often, if not always, to be found in the individual failure of the patient to adapt his or her mental feelings (emotions) to environment. As confusion implies an intellectual defect, and as intellect is different mental stuff from emotions (mental feelings), the fact that confusion is caused by disease of the cortical area tends to prove that intellectual faculties are a property of the cells in the cortex of the brain. As insanity is a failure of the individual to adjust to the environment, and may show either predominantly intellectual disability, or emotional instability without any intellectual dulling, intellectual insanity is a sign of disease of the nerve-cells which are a definite part of the organism, while emotional abnormalities, which may exist without any evidence of the intellect being impaired, do not appear to be able to be located in any definite region at present.

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(2) Some may not admit that an emotion is primarily a mental process, but no one will deny that the effect of an emotion will cause bodily changes in metabolism. The simple examples of a blush, sweat of fear, vomiting of horror are well known. (3) The points of value in diagnosis are the confusion and restlessness of the patient, whereas the depression or exaltation is of no diagnostic significance.

The Results of the Treatment of General Paralysis by Malaria.⁽¹⁾

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WITHIN the last two or three years a considerable amount of work has been done in this country in the treatment of general paralysis by malarial inoculation. While it is yet too soon to form a final opinion on the results of the experiment, the present seems to be an opportune moment for reviewing what has been done, and for reaching at least some tentative conclusions. In this connection it is important to remember that the method is not altogether new, as it has been in use on the continent for the last seven years with but short interludes. Seven years, it will be admitted, represents a fairly long period in the history of a group of general paralytics, and the fact that those who first applied the treatment have not modified their views as to its efficacy after so long a period of observation is, in itself, of some significance. It is true the work done in this country does not bear out in full the claims made by those who originated the treatment, and still less does it endorse the work of some later exponents. In some instances cures amounting to 60 *per cent.* of the cases treated are claimed, whereas in this country improvement comparable to these continental cures does not occur in more than about one-fourth of that number. In one important respect, however, there is more or less unanimity, namely, with regard to the effect of the remedy on the serological findings. It is found that even in those cases which, from the clinical standpoint, represent the best results, no constant change occurs in the serological condition of the patients. In individual cases there may be a reduction in the intensity of the Wassermann reaction in the blood or the cerebro-spinal fluid or perhaps in the cell-count or globulin content, but such changes appear to be incidental. Impressive as the results undoubtedly are in certain directions, it still remains improbable that complete cure results from any method of treatment, seeing that general paralysis, even in its earliest stages, necessarily involves some degeneration of cerebral tissue, whose power of re-organization and recovery is confined within the narrowest limits.

Exactly how the results are obtained is something of a mystery. The original idea which prompted the use of malaria was the observation that remissions might occur in the course of the disease after an attack of acute fever. Pilcz goes further, and points out

⁽¹⁾ A paper read at the Quarterly General Meeting held at Edinburgh, February 19, 1925.

the effect of such fevers in preventing the development of general paralysis in cases of undoubted specific infection. Out of 5,000 soldiers suffering from syphilis whose terminal history was investigated by him, 5 *per cent.* were found to have developed general paralysis. Of the 95 *per cent.* who escaped every man had had malaria or erysipelas or some other feverish disease within the first year or two of contracting syphilis, while out of the 5 *per cent.* not one had had any of these disorders. In support of his views Pilcz refers to the fact that though syphilis is almost endemic in the tropics, general paralysis is comparatively rare, and suggests that the endemic frequency of malaria may account for that.

Two years ago, at Morningside, we inoculated twelve patients suffering from general paralysis with malarial blood derived direct from a case of malaria. In the light of subsequent developments it is worth noting that these cases were not inoculated in series from one another, but were all infected directly from the malarial case. Amongst the twelve patients the average duration of the disease at the time of inoculation was about two and a half years, although individual cases were much more advanced. Of the twelve patients three have since died. In one case death occurred within a day or two from intercurrent disease, and may, therefore, be left out of our reckoning. The second patient died three months after inoculation, but in this case the malarial infection was cut short after three rigors instead of the usual ten or twelve. His death also does not affect the results. The remaining death occurred eight months after inoculation, and this is the only patient of the original series who has since died after completing the malarial treatment. In his case the disease had been in existence for about three years before inoculation, and at that date had produced marked physical and mental deterioration. As a result of the inoculation this patient improved considerably for two to three months, but then had a distinct relapse, which eventually proved fatal.

Of the remaining nine cases, three were transferred to other hospitals and are reported to be alive and doing well. One has been discharged direct from Morningside. The remaining five are still under care, but all of them are improved, and were it not for the fear of a relapse in some cases, and difficulties at home in others, might be considered fit for discharge to the care of their relatives.

Certain conclusions may be drawn from our experiments with these twelve patients. In the first place no patient died from malaria, and if strict precautions are taken to ensure the proper type of infection the risk of serious complications is really small. In this connection the ease with which artificially-produced malaria

can be controlled with quinine is very striking. In some cases the fever is completely removed by a single dose of quinine, and in all cases it is abolished by a three-days' course of quinine. Since these original inoculations were made no patient has had a malarial relapse. Again, the improvement which occurs is most marked in early cases of general paralysis, and the full benefit is not at once apparent, but is apt to unfold itself gradually during the course of several months. Eventually the patient reaches a condition which depends largely on the stage of the disorder at which the remedy was applied. Up to this date the improvement which has followed the treatment has broken down in only one case out of nine. It is not claimed that any patient was completely restored as a result of the treatment. As has been said, the serological condition of the patients, except for minor changes, remains unaltered. Further, though there is in practically every case an improvement in the general physical condition, many of the physical signs of general paralysis are only slightly modified, while others are as obtrusive as ever. It is on the mental side that the signs of improvement are most obvious, and the results in that direction are in some cases really impressive. It is, however, hardly true to say that general paralysis leaves no scar. On the contrary, there remains in every case some degree of mental enfeeblement which, after all, is the true characteristic of general paralysis.

Reviewing these cases as a whole, one might say that in one case the effect of the treatment was to produce a temporary improvement, followed some months later by relapse and death. Were a relapse to take place now in the case of a patient in the early stage of general paralysis one might resort to the expedient of a second inoculation. This has since been done in some cases after an interval of six or eight months following the original inoculation, and is said to produce good results. Of the other patients only one so far improved as to be considered fit for discharge. This had been a case of general paralysis in a fairly early stage and conforming to the manic type of the disorder. Since his discharge over nine months ago he has remained well, and has actually set up in business for himself. A careful examination of his condition, however, shows that, although he is apparently recovered, he remains in a hypomanic condition, with rather more self-assurance and self-confidence than is natural to him. Still, it is interesting to observe that his case, like all the others that have apparently done best, belongs to the manic type, and these are generally regarded as responding most successfully to the treatment. In other cases benefit has resulted to a lesser degree, and their condition resembles more or less closely the state of affairs that exists in a natural

remission. It is no mean achievement to be able to produce remissions by artificial means, and that, it seems to me, is the most ambitious claim that can be made for malarial treatment.

Owing to the difficulty of obtaining supplies of fresh malarial blood, we have been compelled in our later cases to adopt strains which have already passed through a varying number of hosts. The results from the use of these strains are not comparable with those obtained by direct inoculation. The differences in the behaviour of the malaria under such circumstances are quite striking, and are possibly not unconnected with the fact that repeated artificial inoculation implies the elimination of the sexual phase of its life-cycle. In any case its passage through a long series of hosts tends to increase the virulence of the organism, and therefore the risks involved in its use are the more serious. In some instances the fever assumes a quotidian form, which has a very exhausting effect on a patient already debilitated by general paralysis. There is no advantage to be gained from crowding the treatment into half the time, because, even if the patient successfully survives, the improvement which follows is not so marked. It may, indeed, be that the rapid succession of rigors prevents the development of specific antibodies, if we assume that to be the true rationale of the method.

Malarial treatment always produces a distinct anæmia, which is usually recovered from quite rapidly. In our later series of cases the anæmia has been more profound, and has, in about 50 *per cent.* of the cases, been accompanied by splenic enlargement. This latter feature was absent in all of the first batch of cases. Further evidence of the toxicity of these old strains is found in the frequency with which patients become delirious during the treatment.

It is interesting to note that in one series of cases inoculated with an old strain, that was really our first strain after its passage through a large number of cases elsewhere. Its use in these later cases afforded a dramatic illustration of how the character of the reaction varies in such circumstances. In two out of four cases it produced a quotidian type of fever. In two cases it produced a state of marked toxic confusion with vivid hallucinations of sight and hearing. In one case out of four its effects were so severe that the course of the fever had to be cut short, while none of the patients looked like surviving more than six to eight rigors instead of the usual ten or twelve. The four cases were originally an average sample, and stood comparison with the twelve cases which formed the basis of the original experiment. Even keeping in view the fact that the rigors were strictly limited in number, and that the reaction to inoculation was so severe, the results of the treatment were

disappointing. In one case the hallucinations persisted for a considerable time, and otherwise the only evidence of real improvement was a marked change in the speech of the patient. Before inoculation his speech was unintelligible, not so much because of mental confusion as because of physical disorganization, whereas after treatment he was able to express himself without difficulty. Otherwise he remained grandiose, and addicted to all sorts of objectionable practices, and eventually succumbed to the disorder three months later. In the other three cases no great improvement was obvious either on the physical or the mental side, in one indeed deterioration seemed, if anything, to be more rapid than before.

It is becoming more and more clear, as has been said, that artificial remissions of considerable duration may be produced by the use of malarial treatment, but that complete cure is outside the scope of the method. Moreover, the dangers attendant on the use of old strains should be kept in view, and whenever possible inoculation from fresh sources should be preferred.

Epilepsy: A Clinico-Pathological Study of Fifty Cases. By
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Horton Mental Hospital, Epsom.

[It seems a long time ago since I spent days, even nights, observing and examining cases of epilepsy in the epileptic wards of Hanwell Mental Hospital. I had always felt drawn to the epileptic, and epilepsy was ever a fascinating subject to me.

It was early in the year 1898, when a junior medical officer at Hanwell, that I had my first real opportunity of studying epilepsy—its ætiology, its pathology, its symptomatology and its treatment. I came to know the epileptic very thoroughly; and he claimed my sympathy, even my pity.

It was thus I came to investigate clinically fifty consecutive cases of epilepsy and made notes on a host of others. The neurological data of these fifty cases were published in the first volume of Mott's *Archives*. I read a paper on *The Care of the Epileptic* at a meeting of the Association held in May, 1899, afterwards published in the *Journal*.⁽¹⁾

Prior to this I was collecting and classifying the notes I had made

(¹) In all this I was stimulated and encouraged by Sir Frederick Mott, and much of my work in this and many other directions was done under his guidance; for which I owe him a debt of gratitude I cannot ever repay, and I am not alone in this respect.

on the cases I had under my observation, as the basis of a clinico-pathological paper or lecture. It took a long time to complete, and if my memory is correct it formed the subject of a lecture-demonstration I gave to the students from St. Mary's Hospital in 1898. Unfortunately my manuscript vanished, also the notes of cases, during my removal to Bexley in 1899, and was mourned as lost for good. A few weeks ago it turned up, after being missing for over 25 years, but not the notes, and, as may be imagined, I read it with considerable interest.

I cannot say that, on the whole, my views on epilepsy have changed much following the many years of psychiatric practice which have since gone by. The sum total of our knowledge of epilepsy has vastly increased, but the essential problems of its ætiology and pathology remain unsolved, and the regrettable tendency now is to consider them as unsolvable.

It seems, however, a reasonable hypothesis to view epilepsy as the evidence of an increased resistance to or inhibition of the discharge of nerve-energy, using the word "nerve" in a wide sense to include "psychic." The damming back may, perhaps, affect any functional level, but it seems hardly possible that it could limit itself to one level. Probably all are involved, and one more than another, according to the type of case and the nervous and mental "make-up." This hypothesis allows us to link up all the epilepsies with the neuroses and psycho-neuroses.

The prodromal symptoms would support this theory, as they may be considered as evidences of strenuous bio-chemical activity necessary to overcome the pathological blockage to an even flow of nerve energy. Where the blockage occurs, and its nature, is in any single case a matter of conjecture. It may be chemical (toxic) or psychic, or both. It may be mainly interpsychic or between one level and another, or distributed over all levels, and it may be intra-neuronic or synaptic. For instance, a severe obstruction to or the inhibition of the outflow of an intense emotional reaction may cause convulsions. The obstruction in reflex epilepsy may be of a vaso-motor character. Every case is of engrossing interest to the psycho-pathologist.

I think this hypothesis is indicated by the clinical facts, and that it explains them more satisfactorily than any other theory, and I regret that space does not permit me to give more time to it now.

I cannot claim to be a profound psychologist: perhaps I know little about the subject, but I have a strange notion that I think with my muscles, act with my brain, and feel with my belly (and there may be some truth in that); and it is evident that in 1898 I concluded that the symptoms of epilepsy had a psycho-pathological basis,

and that the somatic disturbances should be considered as manifestations of psychic disturbances. I came to recognize then, and I strongly believe now, that the recognition of the absolute interdependency of physical and psychical processes (including interaction) was the only rational way of viewing the psychology of human activity.

I think the paper, in the light of present-day knowledge, presents information and features of interest which must be my excuse for venturing to publish it.]

Convulsions occur as a symptom of many pathological conditions, many of them met with in asylum practice, some commonly, others rarely, but all requiring to be distinguished from idiopathic epilepsy. In some instances this is not difficult; in others the problem presented is one of extreme complexity. The usual practice in asylums is to classify "fit" cases as epilepsy, acquired and congenital, unless signs of general paralysis are present. This is convenient administratively, but some greater differentiation is required from a clinical point of view, and perhaps also for treatment. A better classification, too, would render more valuable the statistics regarding epilepsy, its character and incidence.

Epilepsy means more to the asylum medical officer than to the outside physician. To the latter it means motor convulsions, and he is seldom called upon to treat any associated mental states. When the latter occur the patient is usually sent to an asylum or other suitable institution and comes under the care of the psychiatrist, who takes a more comprehensive view of the case, recognizing epilepsy as not limited disturbances of motor realms, but to be a condition, when fully developed, presenting both sensori-motor, psycho-motor, and psychic phenomena.

These phenomena would appear to develop at different periods in the course of the disease; more commonly the mental follows the motor, and more rarely the motor follows the mental. The mental symptoms sometimes occur without motor convulsions, but they are usually associated with convulsive seizures, amongst which are those of idiopathic epilepsy. On the other hand convulsions may occur without any peculiar mental disturbance, but in asylum practice they are usually bound up with a mentality familiar to every asylum medical officer. This fact is very important as pointing to the pathological basis being, in a wide sense, common, but not identical, to the various groups of cases exhibiting convulsions.

As before stated, convulsive seizures occur in many pathological conditions. The most common are :

Cerebral tumour.
Localized cerebral softening.
Cerebral hæmorrhage.
Chronic meningitis.
Alcohol toxæmia.
Syphilis.
General paralysis.
Idiopathic epilepsy.
Congenital epilepsy due to—
 (1) Congenital syphilitic lesions.
 (2) Trauma at birth.
 (3) Retarded cerebral development.
 (4) Hydrocephalus.

Less frequently, convulsions due to—

- (1) Lead poisoning.
- (2) Acute meningitis.
- (3) Hysteria.
- (4) Reflex irritation, worms, foreign body in ear, nose, middle-ear disease, teeth, etc.

Other conditions not likely to be confused with epilepsy may be associated with convulsions :

- (1) Uræmia.
- (2) Passage of gall-stones, renal calculi, etc.
- (3) Raynaud's disease.
- (4) Menière's disease.
- (5) Sunstroke.
- (6) Eclampsia during pregnancy.

Sometimes convulsions occur as an episode during the course of katatonia.

Many of these conditions present no difficulties in diagnosis, but in some cases the occurrence of convulsions is the only morbid symptom apparent, and the diagnosis may be rendered more difficult by the mental condition of the patient. It behoves us, therefore, to study carefully the seizures, bearing in mind the fact that prolonged epilepsy arising from any cause gradually tends towards the production of seizures approaching the *grand mal* in type. Probably in coarse lesion cases, although the lesion may at first cause Jacksonian seizures, it is the toxæmia from the lesion which causes subsequent typical epileptic fits. The following remarks apply generally to idiopathic cases except when otherwise stated.

An epileptic fit can for purposes of description be divided into stages. It must be borne in mind, however, that these stages are

not usually abruptly defined. Also that the fits may vary in the same person, at one time having a complete fit, at another time omitting various stages. The observation of one fit therefore is not usually sufficient to enable one to come to a diagnosis—many should be observed.

PRODROMAL STAGE.

Before the actual fit occurs there is commonly a change in the mental condition. The following are some of the chief mental states found, and occur in both idiopathic and coarse lesion epilepsy (these are taken from actual cases) :

- (1) No change, always very insane, usually great number of fits.
- (2) Change of disposition (especially to intimate friends) quick-tempered, irascible, punctilious, peevish.
- (3) Restless, unsettled, constantly asking questions. Increased mental activity, inclined to be excited, semi-coherent and confused.
- (4) Self-willed, troublesome, contrary, obstreperous, suspicious, persecuted, passionate.
- (5) Assertive, cheeky, impertinent, familiar, quarrelsome, combative, inclined to discuss and argue.
- (6) Emotional, fretful, peevish, "spoiled," affectionate.
- (7) Irritable, suspicious, abusive, impulsive, spiteful, violent.
- (8) Complaining, depressed, hypochondriacal.
- (9) Dreams, sees visions, hears voices.
- (10) Depraved, dirty habits, tears clothes, etc.
- (11) Becomes deluded, is being poisoned, etc.

These exist for a variable time, sometimes a week or a day, at other times only a few hours.

THE SEIZURE.

THE "AURA."

The "aura" is commonly stated to be an occurrence which gives a warning of the approach of a seizure. Literally this term means "a breath" or "a gentle breeze," and was adopted because a feeling as if a gentle wind was passing over the body was commonly supposed to indicate the onset of a seizure.

As a matter of fact a warning of this description is rare, and the term "aura" now covers any event signaling the onset of a fit, and there is an abundance of proof that they are really the first events of the seizure and indicate the first part of the brain to discharge. They are therefore of great importance. The term, however, is usually applied to an event which can be remembered

by the patient, and when this memory is absent there is said to be no aura. There appears to be no reason why an observer should not supply this lack of memory on the part of the patient. A first event must occur in every fit; if it occurs before consciousness is lost the probability is the patient will remember it, unless the seizure is very severe; if, however, loss of consciousness occurs at once, or the seizure is so severe as to destroy the memory of an immediately preceding event, then it devolves upon the medical officer observing the seizure to notice carefully the first event and to try and decide what part of the brain it arises from.

When I speak of aura I mean the *first event*. The first event can, therefore, be conscious or unconscious; it may occur in a sensory field, a motor field, or it may occur in parts, if any, of the brain limited to mental processes.

Roughly, then, auræ can be classified as—

- (1) Sensory.
- (2) Motor.
- (3) Mental.

(1) *Sensory*.—(a) Any sensory field may be involved. In my cases auræ of this nature are rare. Hallucinations occur more commonly after the seizure. I have one patient who admits to auditory warnings, but I cannot be sure that she is speaking the truth. Another sees flashes of light and various animals floating in the air. Another case has a pungent feeling in the nose, which she says rises to her head as she loses consciousness. Another has marked dryness of mouth. Another case has pressure on bridge of nose.

(b) Much has been written concerning the sensations of organic life rising into the field of consciousness. Normally they are unconsciously present or present merely in a form of a feeling of being alive, and if in good health they are the basis of the "normal massive feeling of *bien-être*." Some of the organic sensations arising from various parts of the body, especially from those innervated by the sympathetic nervous system, become intensified in morbid states of the nervous system and are present in epilepsy as auræ of organic sensation. Many of my cases complain of pain in various regions, sometimes acute and stabbing, at other times dull and heavy. These most commonly take the form of headaches, sometimes frontal, at other times vertical. One case only has a pain at the lower part of the spinal column. An epigastric sensation occurs in several of my cases; also pain in the chest, like angina, in another. In one case there is a feeling of tightness in the throat.

It is difficult to say how far the existence of these perverted sensations points to actual morbid conditions of the nervous

mechanism—central or peripheral—connected with these regions, or of the regions themselves. All these sensations can readily be produced by various morbid mental states, and the starting-point is quite as likely to be psychic as physical in connection with these states.

(2) *Motor*.—These most notably occur in the early stage of Jacksonian cases. The movements, however, are usually purposeless contractions of a group of muscles and point to a lesion in the motor realm. Co-ordinated movements have, however, a different significance, and when they occur in (1) idiopathic epilepsy they point to some associated mental state or sensation and (2) in coarse lesion cases to disease or disorder of parts of the brain other than motor as the starting-point of the seizure.

(3) *Mental*.—Observation of epileptic seizures has led me to believe that a group of auræ can be distinguished, for want of a better term, as mental. It is presumed that certain nervous processes in the brain accompany and underlie corresponding mental processes. Whether parts of the brain are specialized for mental purposes only, or whether individual motor and sensory centres have direct mental functions without reference to a psychic centre, we do not know.

It would appear, however, that in epilepsy the following may occur:

The first event may be a conscious mental state or the motor reflex associated with a mental state. The nervous process which underlies a mental state may occur unconsciously and result in a co-ordinated motor act. The first event may be a mental state which cannot be recalled, and may result in a reflex motor act of such a character as to betray its psychic origin.

Some patients have suddenly a curious feeling that (a) something is going to happen—a state of apprehension—a foreboding of approaching evil. In other cases the mental aura is one of extreme fright or terror, so much so that the patient may attempt to call out to the nurse, but find herself aphonic. The origin of this is difficult to locate, unless we suppose the occurrence of a disturbance in or one affecting the emotional mechanisms, central or peripheral. (? Fright from a momentary consciousness of the tonic spasm of the larynx.) (b) Another case suddenly feels lost, she cannot recognize people about her or the place she is in, is confused and mystified. (Loss of kinæsthetic sensation or memories?)

These mental states may be followed by reflex motor acts, which, together with the mental state, may be remembered by the patient. Some patients even remember their cry. In the majority of cases the mental state is either not remembered or unconsciousness

occurs early. To the onlooker the first event may be a loud cry or a co-ordinated movement. These movements impress one as being of an emotional character and are probably the reflex of some present or former emotion. The high-pitched cry, the loud laugh, the scream of terror, the agonizing yell would appear to have this origin. These sounds are quite different to those produced mechanically by laryngeal spasm. They occur before the tonic stage, and if continued into the tonic stage, as they commonly are, they immediately change their character. Two of my cases gesticulate with both hands wildly as if trying to beat off an approaching foe before going into the tonic stage, in one case accompanied by a cry of terror, in another by cries for the doctor (if he is present) and an incoherent flow of words. This latter case then clutches her dress between the thighs in front, an event immediately followed by unconsciousness and the tonic stage. She has no recollection of any of this afterwards. Another case runs excitedly round the ward before falling in the tonic stage. Another case gives a leap, another screams and then gives a leap. A case not included in this series stamps the floor with her feet violently as if suffering from some pain. She has no recollection of doing so. One of my cases shakes her head from side to side, as if contradicting some predominant idea. Another claps her hands, grimaces and laughs loudly.

All these co-ordinated movements would appear to have a reflex cause from changes occurring in parts of the brain other than purely motor, and the patient almost invariably has no recollection of these actions when the seizure has terminated. They would appear to be due to the explosion starting in the latest evolved part of the cerebral mechanism, *i.e.*, that associated with the mind. It is impossible as yet to locate this part of the brain. The mind may be associated more or less with a functioning of all the motor and sensory centres in the brain, or of a layer of cells common to the cerebral cortex generally, or of certain specialized areas of the brain having wide associations with motor and sensory centres.

It is not to be wondered at, then, that in idiopathic epilepsy a lesion has been sought in vain, neither is it astonishing where coarse lesion or a toxæmia has existed, to find great difficulty in answering for the train of symptoms which occur during the seizure.

THE MECHANICAL CRY.

The cry uttered during the first part of the tonic stage appears to be mechanical, due to spasm of the laryngeal muscles and to interruption of the respiratory movements. It is commonly a vibratory throat note or groaning, sometimes loud, sometimes soft,

or it may be simply harsh breathing or a choking sound. Most cases at this stage make some sort of a noise, but it may be so slight as not to attract attention. The so-called cases of "silent epilepsy" run the great danger of having a seizure unnoticed.

LOSS OF CONSCIOUSNESS.

Most cases lose consciousness before the tonic stage begins. To the observer the onset of complete unconsciousness varies in different cases. It is seldom that an epileptic can remember any event in his seizure except the aura, and that not always. In early Jacksonian cases consciousness may never be lost, but as Jacksonian attacks gradually change to seizures approaching the idiopathic type consciousness is progressively involved. In old Jacksonian cases consciousness is lost quite as early as in the idiopathic cases.

As the tonic stage progresses the patient gradually becomes comatose, probably due to partial asphyxia. The immediate cause of the loss of consciousness is difficult to explain. Anæmia of the brain has been suggested, but the evidence of this is not satisfactory. Probably the loss of consciousness is due to the brain being poisoned by the setting free of substances produced by its altered chemistry—a cerebral auto-toxæmia. In a Jacksonian case with slow onset consciousness is also slowly lost, and as the discharging area presumably increases so does the loss of consciousness progress.

CONJUGATE DEVIATION.

Conjugate deviation of the eyes during a seizure is not limited to cases resulting from a coarse lesion. It occurs also in idiopathic cases. Usually, however, in the latter cases the condition cannot strictly be called conjugate deviation. There is usually a greater contraction of the muscles of one side of the neck. The eyes commonly remain stationary, or tend to convergence in an upward or downward direction. In some cases, however, the eyes are drawn to the same side as the head, and in a few cases to the opposite side. The head may, however, not deviate, and it may be drawn backwards or forwards. Conjugate deviation is a fairly constant feature in the coarse lesion cases, occurring in three-fifths of my cases. It is invariably present in the hemiplegia cases. It should be noted that as a result of exhaustion of the muscles of the neck on the side of the deviation, the head may afterwards be pulled in the opposite direction. The same occurs after severe spasm of groups of the motor muscles of the eyeball. In half of the idiopathic cases the head was drawn to one side, 68·8 *per cent.* of them to the right and 31·2 *per cent.* to the left.

TONIC CONTRACTION.

The attitude of the patient in the tonic stage varies with the groups of muscles most contracted. Usually one side of the body as a whole is contracted more than the other. In the commonest position the legs are extended, the back rigid and slightly flexed, the head to one side, the arms flexed at the elbows, the forearms semi-pronated with flexion at the wrists and finger-joints, the thumbs being flexed, grasped by the fingers. The face is usually distorted, jaws clenched, and tongue pressed against the teeth and sometimes caught between them. Some of my cases assume a generally flexed position, the legs on the thighs, the thighs on the abdomen, and the head touching the knees—a true hunkering attitude. A little more common than the latter is a completely extended position, with head thrown back and arms to the sides. A few cases have one arm flexed and the other extended, and likewise the same has occurred with regard to the legs.

THE FALL.

The manner of falling depends upon the attitude the body assumes during the tonic stage and the position of the patient at the time of the fit, whether erect or sitting. The extended cases, if standing, tend to fall backwards; if sitting, to slide down off the chair. The great tendency in the other cases is to fall forwards or laterally.

THE PUPILS.

In idiopathic cases, during the tonic stage, the pupils gradually dilate and lose the reaction to light. The degree of dilatation varies. Usually the greater the coma the greater the dilatation. The eyes commonly protrude somewhat and the eyelids are usually open. In the coarse lesion cases the pupils commonly remain in the same condition as they were before the fits, and if the reactions are present before the fit they sometimes dilate or remain the same, but eyelids are, however, more commonly closed than open.

Kowalevsky says that he has seen idiopathic cases in which, during the fit, the pupils reacted normally and were of medium size, and also cases in which they were contracted. The pupils would, however, appear to dilate, and to lose their reaction in proportion to the amount of coma present. Pressure on the sympathetic ganglia in the neck is offered as an explanation of the dilatation, but this is hardly likely, for in the clonic stage the pupils commonly flicker and the eyelids open and shut, and would appear to be due to alternating discharges in the various pupillary centres in the brain.

CLONIC CONTRACTIONS.

These commonly begin so very generally that it is impossible to note the progression. Various observers have stated what they thought to be the most common order of progression.

Kowalevsky's order is face first, then right arm, right leg, left leg, left arm. Personally I can only say that (1) where it was possible to note the progression that part first affected was the face or one of the arms; (2) the order of progression varied in the same case at different times.

It is the cessation of clonic contractions which is more instructive and more valuable, and more likely to reveal the nature of these movements. I have attempted to note the order of cessation under the impression that the part of the brain which discharged first would be exhausted first. These observations, however, proved of little value. In a few cases the cessation was as abrupt as the onset, but in most cases the clonic convulsions gradually changed into co-ordinate purposeful movements. The latter observation is a very important one, as it may reveal the nature of the clonic contractions. It shows that the groups of muscles affected are those which in the normal state result in co-ordinated movements—muscles which physiologically work together. The cerebral associations remain unaltered during the fit.

I have observed such acts as the attempted tying and untying of bootlaces, the insertion of the finger in the ear, the straightening of the hair, the buttoning and unbuttoning of the dress, the rubbing of the eyes, all continuous with the clonic contractions. A common act is to attempt to expose the person, to rub the dress between the thighs. Others kick, scratch or bite or strike out. More than one gets up and walks round and round the ward quite unconsciously. One woman gets up on her knees and scrubs the floor with her hands; others begin to laugh and cry. Some gain consciousness while doing these acts, but in others the movements gradually disappear and the patient lies quiet.

These purposeful actions are most common in cases where the coma has not been very deep. If the coma is deep the cessation of movement is commonly abrupt from sheer exhaustion, and stertorous breathing persists for some time. The symptoms in these cases would appear to be marked by prolonged partial asphyxiation.

The occurrence of these movements would appear to show that in epilepsy the motor realm is discharging under the guidance of other realms, *i.e.*, those associated with sensation and ideation; or by itself in a manner it has learned by experience and education

following association with the sensory and psychic fields. At first there is rigidity due to absolute contraction of opposing muscles; then purposeless movements, not due to chaotic brain explosion, but to the attempt at performing at the same time antagonistic though purposeful movements. Gradually the weaker movements cease, leaving certain co-ordinate actions no longer antagonized, and continued, maybe, by discharges from parts of the brain having the higher functions. This conception of epilepsy offers an explanation for the brutal deeds done by epileptics unconsciously.

There is an easy gradation between those cases of epilepsy in which mental and sensory symptoms are masked by strong motor symptoms and the so-called mental epilepsy. It is well known that in any epileptic case convulsions vary in duration and severity. The aura may occur alone or be followed by some mental confusion or by slight unconsciousness, the tonic and clonic stages being entirely omitted. Consciousness may be retained on another occasion, the aura being followed by an emotional condition and some emotional movements. The tonic stage may be so short as to be unnoticeable. I have known epileptics who have fits of the "grand mal" type to have on other occasions only an aura and some co-ordinate movements, there being no memory of the event afterwards. It is easily understood what might happen if these movements were of a violent or destructive kind. The aura may never reach consciousness. To take a step further, the aura might possibly be a delusional idea and be followed by an emotion of rage and a violent outburst—the whole incident being only vaguely remembered or not at all.

PALLOR.

The onset of the seizure is, in a large proportion of cases, ushered in by a sudden pallor lasting a few seconds, probably due to sudden vaso-motor constriction. Ophthalmoscopic examination of the eye reveals spasm of the retinal vessels during the period of pallor, followed by a passive congestion increasing with the intensity of the convulsions, and probably due to stimulation of the vaso-constrictor centre through a reflex agency. We are not justified in asserting from this that there is synchronous anæmia of the brain. The cerebral hemispheres at least have probably their own vaso-motor control, and it is more than likely that pallor of the skin means congestion of deeper organs. The tremendous explosion of brain energy is not likely to be associated with cerebral anæmia. Cyanosis of the face occurs from mechanical interference with the respiratory functions.

THE PULSE.

It is usually difficult to examine the pulse owing to the jerking of surrounding tendons. When felt it is found to be quick and feeble (90-140). Voison found that sphygmographic records show curves short and shallow, with the up-strokes short and their tops rounded. The blood-pressure is lowered and remains low for 24 hours after.

The heart beats tumultuously, and sometimes great irregularity is present. There is marked pulsation of the carotids in the neck. I did not notice any subcutaneous hæmorrhages in my cases.

ASPHYXIA.

The degree of interference with the respiratory function depends upon the extent of involvement during the seizure of the laryngeal muscles, the muscles of respiration and the cardiac vigour. Some patients become slightly blue in the lips, but others develop a condition approaching asphyxia. The stertorous breathing appears to be the result of paresis of the soft palate.

INCONTINENCE, VOMITING, ETC.

The escape of the urine is a very common feature in epilepsy. It is not limited to idiopathic cases, however. It is present in some of the coarse lesion cases. It is a very common occurrence for an epileptic after a fit to pass a large quantity of pale urine. The escape of the urine would appear not to be due to spasm of the abdominal muscles as usually explained, unless the bladder be greatly distended. It is rarely that the rectum empties itself, but this occasionally occurs. Some epileptics have fits which are distinguished by marked gastric symptoms. One of my cases always vomits after a fit. In several I have noticed retching and in one slight vomiting, during the fit. The saliva is freely secreted, and its composition is said to be similar to that secreted on stimulation of the corda tympani nerve.

All these disturbances would appear to be reflex, due to implication of parts of the brain associated with sensation, etc.

CONCLUSION.

A study of the epileptic seizure would persuade us that it is symptomatic of a great brain storm in which more or less all parts of the brain are involved. These seizures occur typically in idiopathic cases. Storms of a very similar nature also occur in coarse lesion and other forms of epilepsy.

Epileptic seizures are the manifestations of a cerebral explosion more as regards organized brain function, inherited and acquired,

than a mere chaotic and haphazard explosion of cerebral matter. The neurons would appear to be associated during an epileptic fit as in the normal state. This, in my opinion, is the most distinguishing feature of a true epilepsy as compared with Jacksonian attacks, whose progression of symptoms is merely anatomical. In the former there remains the indissoluble union between the motor, sensory and mental functioning of the brain, making an epileptic a risky if not a dangerous member of society.

The Boarding-out System in Scotland.⁽¹⁾ By GEORGE GIBSON, D.S.O., M.D., F.R.C.P. Edin., Deputy Commissioner, General Board of Control, Scotland.

ANY paper on the "boarding-out system" in Scotland would be entirely incomplete without a reference to the recent death of its distinguished advocate and supporter, Dr. John Fraser. For seventeen years as a Deputy Commissioner Dr. Fraser visited patients throughout the length and breadth of Scotland, and his interest and enthusiasm in the method lasted to the end of a long life. His devotion to duty and the high standard he always set are fully appreciated by one who, as a Deputy Commissioner, is privileged to come after him, and finds a daily difficulty in adequately following in his footsteps. It is matter of real regret that he is not with us here to-day.

The expression "boarding-out" strictly refers to the arrangement obtaining in Scotland under which mental patients are domiciled in specially licensed houses, under the care of strangers. In the fuller application of the term, it has come to refer to any parish patient living under private care either with relatives or strangers.

The term is hardly felicitous; it is apt to give a wrong impression, and convey the idea that all these patients are boarded out from asylums. This is far from being the case, for it is a feature of the system that it is entirely divorced from the asylum treatment of the insane—so much so that many patients treated under this system never have, and probably never will, see the inside of an asylum. Furthermore, the local authorities concerned in providing for the care of patients in private dwellings are not the same as the bodies who control the asylums. Parish councils are responsible for the provision and selection of the specially licensed houses, while

(¹) A paper read at the Quarterly General Meeting held at Edinburgh, February 19, 1925.

the management of institutions is in the hands of District Boards of Control.

The aim and object of the system is to ensure that all mental patients in receipt of parochial relief, while under private care, shall only receive such relief on the understanding that he or she lives and is treated under conditions which are prescribed by the State, through the Board of Control. Further, such a patient is to be inspected from time to time, to see that those conditions are being fulfilled.

The superintendents of asylums are concerned only in so far as they may decide from time to time that certain patients would be the better for being boarded-out. Once these patients have been transferred from the asylum to private dwellings the superintendents' responsibility ceases. It is not their duty to visit them. Indeed, they may never see them again, unless from some cause, either mental or physical, it becomes necessary to return the patient to the asylum.

As the administration is entirely in the hands of the parish councils, and of their officials, the inspectors of poor and parish medical officers, certain regulations were laid down by the Board of Lunacy, for their guidance, and to insure a uniformity in the working of the system. These regulations are practically the same whether the patient be certified under the Lunacy Acts or under the Mental Deficiency Act.

The parish councils select the guardians and houses, paying attention to the comfort, the feeding and the clothing of the patients, and taking such steps as are necessary to see that the guardians are trustworthy, efficient, and that they are properly remunerated.

The patients must be visited by a medical man appointed by the local authority at least once every three months, and by an inspector of poor once every six months. These visits are recorded in a visiting book, kept for the purpose in the house where the patient resides. In this book the medical officer enters any suggestions for improving the patient's condition which may appear necessary. In addition each patient certified under the Lunacy Acts is visited at least once a year by a medical deputy commissioner of the Board of Control. In the case of certified mental defectives the deputy commissioner visits twice a year. These visits are of the nature of surprise visits, and may be paid at any time of the day or night.

Various directions for the guidance of guardians are laid down. These are concerned with the employment and recreation of the patients. The procedures to be followed in the event of the patient escaping, meeting with an accident, being taken ill or becoming

unsuitable for private guardianship are also detailed. In addition certain conditions must be observed in the accommodation provided. The quarters must be free from damp, well ventilated, and the bed must be comfortable and have sufficient coverings. The patients must have a complete change of clothing, and their personal cleanliness must be carefully attended to.

Licence is granted to certified patients to reside in private dwellings under four separate provisions of the Lunacy Act :

1. Patients who have never been in an asylum—that is, patients whom the local authorities or their advisers consider harmless and quite suitable for this form of treatment. Two medical certificates are necessary. This type of certificate does not require a sheriff's signature; the Board of Control grant the sanction. The number of these sanctions is yearly becoming less. These patients, who are for the most part congenital cases, are now more usually dealt with under the Mental Deficiency Act.

2. Patients removed from asylums, either at the instance of the superintendent or by minute of the parish council, and whose names are still retained on the parish roll. Board of Control sanction is necessary, and if it later becomes necessary to return any patient to an asylum, a sheriff's warrant must be applied for.

3. As this method was considered cumbersome, a modification was introduced in 1913. Under this a patient can be transferred from an asylum to a private dwelling on certificate by the superintendent, and with the sanction of the Board of Control. Similarly, he can be returned to an asylum without the necessity of a Sheriff's warrant, sanction by the Board of Control being sufficient authority for his re-transfer to the asylum.

4. Patients may be liberated on probation from asylums for any period up to a year. If at the end of that interval they prove to be suitable cases, they may be discharged "unrecovered" to the guardianship of a private home, after sanction has been obtained from the General Board of Control.

The type of patient found in private dwellings may be classified into the following groups: (1) Idiots; (2) imbeciles; (3) acquired insanity.

Before the passing of the Mental Deficiency Act, the majority of patients of the idiot and imbecile class found in private dwellings had never been inside an institution. Now, however, we find quite a number of patients who have been transferred from one or other of the institutions for mental defectives.

The patients suffering from acquired insanity are mostly transfers from asylums.

In either case, whether the patient is certified in the first instance for residence in a private dwelling or transferred from an asylum, he must be seen and reported on by some medical man: in the former case by two medical men, acting on behalf of the parish council, while in the latter, the medical superintendent gives the necessary certificate that the patient is suitable for a private abode.

It will at once be obvious that we are dealing with a picked class. From a psychiatric standpoint they may not present many interesting features. The types of mental derangement most to be met with are mild and chronic manias, patients with harmless delusions, demented, and patients showing the signs of congenital insanity from slight degrees of mental deficiency to idiocy. Suicidal and homicidal patients are naturally as entirely unsuitable for this method of disposal as are noisy, violent, restless and wandering cases. Epileptic patients must also be regarded with a suspicious eye, and though patients suffering from epilepsy may be permitted to remain at home with their relatives, they cannot be regarded as suitable patients to be boarded out with strangers. It is not fair to guardians to send them patients with unpleasant habits, or who, from physical infirmities, are unable to look after themselves.

When in 1855 a Royal Commission was appointed to inquire into the "State of Lunatics and Asylums in Scotland," it found among other things a serious shortage of accommodation for the reception of the mentally afflicted.

There was at that time 7 chartered or Royal asylums, 1 public asylum, and 12 poorhouses with separate wards for the insane. In addition 23 private establishments or licensed houses accommodated patients in varying numbers from 1 to 86.

The remainder of the patients were living with the ordinary inmates in poorhouses or in private houses with relatives or strangers.

The numbers were approximately—

	Private.	Parish.	Total.
In public institutions . . .	659	2,180	2,839
In private establishments . . .	231	426	657
In private houses . . .	—	—	1,363

Some doubt seems to have existed as to whether this last figure was correct. The number 1,363 was that returned by the Board of Supervision of the Relief of Poor. The returns of the Constabulary Force assessed the number of these patients at 1,998.

In their report the Commissioners stated their opinion that poorhouses were ill-adapted for the accommodation of lunatics. The

reasons given for adopting this point of view were connected with the unsuitability of the accommodation, the lack of suitable employment, the absence of amusement, the want of cheerfulness in confined rooms looking into small airing-courts. The whole of these conclusions are summed up in the sentence: "We have no hesitation in saying that, in providing accommodation for insane paupers, the parochial authorities have more consulted the interest of the ratepayers than the well-being of the patients."⁽²⁾

At the same time inspection of the private establishments or licensed houses revealed in many instances a deplorable state of affairs, as was also found when the conditions of lunatics living in private houses either with relatives or friends was inquired into.

In those early days none of the district asylums had been built, and the accommodation in the seven chartered and one public asylum was not adequate to accommodate even such patients as they were requested to do. As an example, in 1859, out of 1,234 applications for the admission of patients into the eight existing asylums, 316 were refused.

It will be seen that there was a decided shortage of accommodation, which was the more serious, as many of the existing institutions were found to be inefficient and badly conducted.

The Commissioners were prompt in their action of urging the district boards to erect asylums in the local areas, under their administration. But asylums cannot be built in a night, and some boards were slow in making up their minds, and already in the report of 1860 we see that efforts to solve the accommodation problem were being made in another direction, by advocating the opening of specially licensed houses, accommodating a maximum of four patients each.

That the Commissioners did not regard this new "boarding-out system" merely as a temporary expedient is obvious from their report, which reads as follows:

"That all cases of insanity should be placed in an asylum is a proposition we cannot entertain; the welfare of the patients would not thereby be promoted, while the expense to the country would undoubtedly be greatly increased. . . . All great aggregations of permanently diseased minds are evils which should, as much as possible, be avoided, as their tendency is undoubtedly to lower and degrade each constituent member of the mass. Viewed in a certain light, then, asylums may be regarded as necessary evils; . . . we would gladly see it enacted, that any number of patients, not exceeding four, might be received into a private house. . . . Under some such provision we feel satisfied a system of cottage accommodation would gradually spring up, which would not only furnish more fitting accommodation for chronic patients than the lunatic wards of poor-houses, but would also be calculated to prove a valuable adjunct to asylums. . . . The practical advantages of such a system would be, the greater amount of liberty accorded to the patients; their more domestic treatment; and their more thoroughly recognized individuality."⁽³⁾

When this was written the numbers of patients in private dwellings was estimated at 1,363. From that date the total gradually increased until the year 1913, when the "boarding out" reached its high-water mark of 2,909. The war caused a set-back to the system, from which it has not yet recovered.

The number of patients in private dwellings certified under the Lunacy Act is now 1,789, showing a decline of 1,120 from the total in 1913. At first glance one would think that this sudden shrinkage of about a hundred a year means that the system is galloping to its end in a rapid decline. It is hardly so serious as this, for we must not forget the 874 mental defectives living in private homes. Before the passing of the Mental Deficiency Act many of these patients would have been certified under the Lunacy Act for residence in private dwellings—some, but not all, for the Mental Deficiency Act is unearthing patients that the older Acts failed to discover. But even counting in these defectives, there is a diminution in numbers of 246.

In 1858, when the General Board first commenced its activities, the bulk of the patients in private dwellings were congenital cases who never had required asylum treatment. For twenty years (1860-79) after the General Board had been established the additions were mainly of that class. During the next twenty years (1880-99) the total was greatly swelled by the numbers of patients removed from asylums. During the early years of this century this condition of affairs persisted, and patients suffering from acquired insanity were boarded out in increasing numbers.

Now we have more or less reverted to the situation which existed from 1860 to 1879—that is to say, the total is rather kept up by those certified and left at home, while the annual number of those transferred from asylums is appreciably less.

Several reasons have been advanced to account for this. The housing question has undoubtedly had its influence, as the scarcity of houses in rural Scotland has resulted in the available space being required for the ordinary inhabitants. Another important factor was that many of the older guardians died during the last few years. Changes in the economic conditions and the greater distribution of wealth in the years immediately following the war have made it difficult to replace these guardians.

There are signs, however, that the shortage of houses is not nearly so acute as it was a year or two ago, while at the same time there is evidence that new guardians are coming forward, from the increased frequency of inquiries about patients, and the fact that several new houses have recently been licensed.

I do not think that the shortage of guardians and houses is

entirely to blame. For some reason the system does not seem to enjoy the same popularity as formerly. This feeling is not among the general public, which seems, on the whole, to be sympathetically inclined; it is to be found elsewhere.

A great deal of the success of the boarding-out system in the past was due to the enterprise of certain inspectors of poor. It was greatly to the credit of some of those gentlemen that they recognized in this method a useful adjunct to the asylum treatment of the insane. For those others, who had the interest of the ratepayers most deeply at heart, there was the added inducement that it was possible to keep these patients for a comparatively low cost. For in those days the alimENTS paid for patients in private houses were low, and it was much cheaper to keep them under those circumstances than to pay the rates charged in the various asylums.

In 1897 Dr. J. F. Sutherland compiled some interesting figures, which show that the boarding-out of patients was an economic proposition. Taking Edinburgh Parish Council with 327 boarded-out patients as an example, he calculated that to provide institutional accommodation for this number would have entailed a building cost of £120,000 and an annual expenditure of £3,200.

Since Dr. Sutherland wrote conditions have changed, but the change is only in degree. Now the saving to the ratepayers is not so great, because while the cost of providing for patients in private dwellings and the alimENTS paid have all increased, the Government grant remains the same.

In another direction the situation is not so dissimilar. In Dr. Sutherland's time, in spite of the fact that several large district asylums were newly opened or on the point of opening, practically every bed was already bespoken. Again we are faced with similar circumstances, and in certain districts there is a shortage of asylum accommodation.

In spite of the circumstances being similar, the economic reasons for boarding patients out have certainly become less vital, and as they have become so there seems to be a tendency to adopt the easier method, and to allow patients to remain in asylums, for it is the easier way—about that there can be no doubt.

Before a patient is boarded out satisfactory guardians must be found; arrangements for medical visitation must be made and the patient must be transported to the new home. There, after all this trouble, he or she may prove to be an entirely unsuitable case, and have to be removed somewhere else after a few days. Then, if the patient be successfully domiciled, he or she must be visited twice a year by inspectors—rather a cumbersome procedure in

each individual case. How much easier to avoid all this by allowing the patient to remain quietly in the asylum!

In 1904 we see Dr. Charles Macpherson calling attention to the fact that the great bulk of the boarding-out was from five or six institutions. This is merely another aspect of the economic side of the question, in that the large parishes, by boarding-out in bulk, effect very obvious economies which are apparent in the rates, while in small parishes, with only one or two patients, the saving to the ratepayers would be so small as to be hardly appreciable.

This may possibly be the cause of that apathy which Dr. Charles Macpherson describes when he states that inspectors of poor could scarcely be induced to look for homes for unrecovered patients. I am inclined to think that inspectors are not wholly to blame, and that in many cases the statement made twenty years ago "that asylum authorities do not press for the removal of their unrecovered inmates, who no longer require asylum care unless the institution is overcrowded," holds true to-day.

Remember there are 875 parishes in Scotland, running from Glasgow with over half a million parishioners, to Lyne, with 78. A host of the smaller parishes have either very few patients or none at all. To them the occurrence or certification of a case is a rare happening. As they have little practice in the working of the lunacy laws, it seems only natural to expect that they are possibly not fully aware of the merits of the "boarding-out system." Were their attention directed towards it, and its many advantages explained to them, it is possible that more patients from the smaller parishes might come under this system.

And there is another factor which possibly is not without its influence on the situation, with shorter hours of work and increased wages, the cost of providing male and female staffs for asylums has gone up very greatly. As a result the good working patient has acquired an enhanced value, especially as a farm-worker. The asylum authorities are less likely to be anxious to discharge these good patients, who frequently do nearly as much as an ordinary paid field worker.

But it is chiefly in the attitude of medical superintendents towards the system that one would like to be instructed to-day. The economic aspect of the situation should naturally appeal less strongly to them than to non-medical authorities and officials of asylums and parish councils. One naturally expects them to regard the patients under their control as sick people, or at least as abnormal persons, whose welfare is their first and most sacred duty. Here, then, is a situation which involves the liberty of our fellow-subjects, in which no question of expediency born of government grants

or ratepayers' pockets should be allowed to interfere with the true merits of the case, which should be judged impartially upon medical rather than upon economic grounds.

Do all superintendents exert as much pressure as they might do upon inspectors to get them to remove such patients to suitable homes in the country as no longer require asylum treatment? And do they try to influence their boards against the retention of good working patients in institutions?

We do not know of any change in type of insanity requiring the retention of more patients in asylums than formerly which would account for the falling-off in the numbers of the "boarded-out." We are therefore forced to the conclusion that there must be some patients in asylums who could quite well be provided for in private dwellings.

There is no getting away from the fact that there is still a prejudice against asylums in the minds of many patients. Much as these institutions have improved in the past and are daily improving, the average person has no ambition to be confined in one of them. A nearer acquaintance may bring about a change of opinion, and many patients have no desire to live elsewhere, or if removed, request to be readmitted. In the country they miss the orderly routine and the mild excitements, the concerts and lectures of institution life. I remember one patient, bored by the quiet life of a Fife village, who demanded to be sent back to the asylum. I think, however, the majority of patients would prefer to live outside the walls of an institution rather than inside.

By limiting the numbers of patients in specially licensed houses to four the Commissioners did away with the institutional character of the scheme. As a result the mentally afflicted are allowed the inestimable benefit of associating with the sane of the community, and in their condition of increased domesticity patients spend their time pottering round gardens, working in farm-yards, knitting, sewing and reading. In many instances patients are able to make small wages by doing occasional work for neighbours. Very many guardians allow the patients to keep the money so earned; as a result there are patients who own bicycles, I know of one who has a camera, another who paints quite good landscapes, and a third who turns out the most ingenious mechanical windmills. These are a few examples of the directions their expenditure follows, and it must be admitted that considerable discrimination is shown in their disbursements and in the selection of their hobbies.

The possession of money, with its accompanying spending power, small though it is, means an added dignity and importance, with a resulting increase in happiness. And to this we must add the

greatest benefit of all, the extended liberty. Anyone who has visited "boarded-out" patients will tell you of the numerous delays constantly occurring because this or that patient has to be looked for. The guardian generally has a fairly good notion that this patient went gathering sticks an hour ago in the wood, or that that patient went for milk half an hour ago. Armed with this information the patient will soon be found carrying out the allotted task, unworried and unhurried. It is this free existence, this absence of bother and restriction which appeals to me as being peculiarly adapted for these patients. Here, for them, would seem to be the best chance of happiness, and are these patients not entitled to any share of happiness which may be going? After all we cannot ignore the patients' opinion, and must give heed to any views they may hold.

For practical purposes patients might be regarded as belonging to two classes—those who are going to improve and those who will never get any better.

As long as there is any chance of recovery we should neglect no methods which may result in curing the patient. Let us be as scientific and as modern in our methods as is possible.

But when no improvement is possible, when the case is chronic and will be so until the patient dies, are not kindness, gentleness and the maximum of freedom of greater value than all the psycho-analysis and bacteriology in the world? I would humbly submit that those are to be found in making the patients' surroundings as much like home as possible, and would venture to suggest that this more cheerful home-life is to be found rather in the private dwellings and specially licensed houses of Scotland than in the wards and day-rooms of our asylums.

Some recent observations by Dr. Ferguson Watson are of great interest, and indicate other advantages which patients derive by being boarded out. His remarks are as follows:

"Patients are generally well fed. It is quite true the diet is not that of a hotel, and for that matter nor is it that of an institution. But is it any worse? My experience goes to show that it is much better than the latter. In my area the number of guardians who provide margarine instead of butter is but 5; in rate-paid institutions—at least those I have visited officially—all give margarine. In a private dwelling porridge is much better made; the scones and oatcakes are baked; there is plenty of sweet milk (I have often seen it brought fresh from the cow) without separation of cream, home-made cheese ("crowdy"), fresh meat, frequently fish, pork, and in the Lowlands an abundant supply of vegetables. The variation of dietary also is much in advance of an institution. In these conditions the patients put on flesh when removed from the large cities—and even when boarded out from an institution."⁽⁴⁾

These views advanced by Dr. Watson cannot be disregarded.

It is impossible to doubt that in another direction the "boarding-out system" has exerted an influence which might be described

as educative upon public opinion. This has had a certain effect upon the attitude of the general public in Scotland towards the whole question of lunacy. The presence of patients in a country-side has had the natural result of showing the ordinary inhabitants that these harmless unfortunates are one of the best behaved and most orderly sections of the community. As a result the sane portion of the inhabitants regard this question with a broad-minded complaisance which is frequently the subject of comment by visitors from other countries. In some parts of the country I would go so far as to say the country people take a real pride and interest in these imported strangers. I would suggest that this spirit of tolerance exhibited outside has made itself felt inside the walls of our institutions, and is reflected in the humane and enlightened views which persist in our Scottish asylums. I suggest that our great superintendents, in introducing their historic reforms in the past, were largely assisted by the spirit of good-tempered interest existing outside the walls. Some of their early innovations, with open doors and absence of boundary walls, and the many escapes which resulted, excited a mild interest but little adverse comment in counties where boarded-out patients had long been familiar figures in the countryside. Strong men though they were, I doubt whether those great pioneers would have gone the lengths they did with an adverse public opinion, which they would have found in some countries where the idea prevails that mental patients can only be treated behind high walls and locked doors.

This extra-mural method of dealing with our problem is at once a corrective, an antidote and a safety-valve. It is the alternative, providing the opposition that prevents the asylum system from becoming a monopoly. Possibly it may appear anomalous to say that its future lies to a large extent in the hands of asylum superintendents; it is so none the less, and with good reason too; for allow the one to die out and the other will soon show signs of decay, for what system can exist in perfect health without the stimulating impetus of competition?

It is in the hope of re-awakening interest in this essentially Scottish system that I have ventured to address you to-day. We pride ourselves on the enlightenment of our national methods of dealing with a great problem; let us see to it that this well-tried, humane and practical scheme is not allowed to wither, to decay, by indifference and neglect.

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Certification as a "Moral Imbecile."(¹) By JOHN MAURICE
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THE term "moral imbecile" used in the Mental Deficiency Act is generally recognized as an unhappy one. It is responsible for much difference of opinion as to the class of case which can be properly so described. There is a view widely held and often expressed that the number of such cases is very small; that to certify them is an unsafe procedure, and that consequently, their inclusion within the Act is of little or no practical value. Those who adopt this view seem to be guided by their own opinion of what constitutes a moral imbecile rather than by its statutory definition. The term, unfortunately, is suggestive of the existence of a moral sense as a mental entity, and the connotation of an almost complete deprivation or imbecility with regard to it. Those who interpret it in this way and who believe in the existence of this hypothetical moral sense illustrate their point of view by the citation of comparatively rare cases, such as the person of good intelligence and education who foolishly and without any compunction or regard for the opinion of others persists in a life of crime—one who, in short, takes to crime not for material profit, but for the gratification it brings. Those who similarly interpret it, but are not of the same belief, consider it as nugatory as its supposed implication. There are

(¹) Published by permission of the Prison Commissioners, but the opinions expressed are not necessarily those of the Commissioners.

others who lay stress on the "imbecility," and take the word in its usual acceptation of signifying a very low grade of intelligence. This view is more frequent or perhaps solely exists in the lay mind. It is exemplified in the tentative correction "immoral imbecile," which was once offered to me in a court of law. Possibly of those varying concepts of a moral imbecile some may be found which fit the term better, but it is by its legal definition alone that those who put in force the provisions of the Mental Deficiency Act must be exclusively guided. When we turn to the Act we find that all ambiguity and conjecture as to meaning disappears. It defines moral imbeciles as "persons who from an early age display some permanent mental defect, coupled with strong vicious or criminal propensities on which punishment has little or no deterrent effect." This legal definition seems to be singularly free from the original sin of obscurity, and to require no baptism by way of judicial elucidation. Nor does it give any occasion for displaying our agility in metaphysical subtleties by "mounting the airy stilts of abstraction." It divides the essential conditions of moral imbecility into two main, and to a large extent, independent considerations:

(1) Some permanent mental defect, which has existed from an early age.

(2) Vicious or criminal propensities undeterred by punishment.

Taking the first of these conditions, we find that apart from the difficulty about "an early age" which presents itself in each of the definitions of the four classes of mental defectives that come within the Act, the limit of what constitutes "some permanent mental defect" is bounded only—and in my opinion properly so—by the good sense of the community, for after all it must be remembered that it is the community or its representatives who are the judges as to whether the evidence of "some permanent defect" of sufficient degree has been established, and not some, perhaps, fanciful psychologist whose mind has become complexed by a too ardent worship at the shrine of a theoretical idol. The defect, in short, must be a demonstrable one, but it seems clearly to have been the intention of the framers of the Act to bring within its scope those cases which exhibit vicious or criminal propensities undeterred by punishment, yet whose mental defect viewed apart from delinquency is not of itself sufficient to justify certification as a "feeble-minded person." In other words, they enacted that a lesser degree of defect should suffice for certification if coupled with incorrigibly vicious propensities. If a person is mentally capable of being a "hewer of wood and a drawer of water" there are no grounds for certification under the Mental Deficiency Act, but if to this low mentality there is added incorrigibly vicious criminal propensities,

then it seems clear such a person comes within the statutory definition of a moral imbecile. Conduct in his case has revealed a deeper defect than can be plumbed by any measure at our disposal. In the estimation of this defect it seems to me that too much reliance and value is placed upon intelligence tests. They are sometimes used as if they had the exactness of a foot-rule. Invaluable as confirmatory tests for mental defect otherwise observed, the most they can indicate is whether the defect is an intellectual one or not. They leave unexplored what is, in criminal cases, the larger field of that which for want of a better term we must call emotional or temperamental defect. We have no semblance of a foot-rule here, nor indeed any laboratory test of recognized value, but we have what is the best of all tests—the struggle and competition of life itself. The defectives are readily weeded out in the process. Our tests, then, may not show us the presence of a defect which has been thus revealed and displayed to many, but that is not a reason for gainsaying its existence. It is rather a reason for the recognition of how imperfect the tests are. With a clear history of mental defect before him the duty of the examiner is not to dispute its existence, but to bring to that history the knowledge of a trained experience to ascertain its causes and form the opinion as to whether it is permanent or not. If the history shows that this emotional defect has not been confined to the adolescent period there will be good grounds for the opinion that it is permanent, and the stage at which this opinion can be arrived at is furthermore the one at which the question of incorrigibility can also be determined. Of course he must be satisfied that the history which forms the demonstrable basis of his opinion is trustworthy, reliable and intelligent, and that it covers the age of schooling and employment. We are fortunate in possessing throughout the country mental welfare agencies, who readily secure all that may be required for our information.

The second consideration for certification as a moral imbecile is vicious and criminal propensities undeterred by punishment. It will be observed that there is here no mention of moral sense. Its concept was too fluid to admit of definition. The abstraction has crystallized out into the more concrete "incorrigibility" which we all can understand, and of which demonstration is not difficult. Here, again, it is for the judicial authority to decide as to whether it has been established, but it is a fair submission that that person is incorrigible who fails to be corrected by all the recognized and possible resources of the State. From the point of view indicated above—the only one which seems consistent with the wording of the Act—it would follow, *à priori*, that moral imbeciles should not be

infrequently met with by those who have to examine large numbers of youthful delinquents. This deduction is amply borne out by my experience, which convinces me of the great importance and value of the subsection of the Act which brings them within its meaning.

Clinical Notes and Cases.

The Treatment of General Paralysis at Hanwell Mental Hospital. [Reported by G. A. LILLY, M.C., M.A., M.D. Camb., D.P.M., Assistant Medical Officer.]

In July, 1923, the Hospital for Tropical Diseases at Endsleigh Gardens enabled us to inoculate our first general paralytics with malaria (*Plasmodium vivax*), and eventually 36 patients (29 men and 7 women) were so treated.

For administrative reasons, the inoculation of patients suffering from general paralysis was discontinued at Hanwell Mental Hospital in March, 1924; after that date, such cases as were deemed suitable were transferred to other London County Mental Hospitals for malarial treatment.

It was thought that little useful information could be gained until a considerable time had elapsed to allow the results some degree of permanency on which to base conclusions, and even now it is premature to pronounce more than tentative judgment on the later patients who have returned to civil life.

The process of inoculation was that usually carried out at most hospitals, i.e., 3 c.c. of infected blood was withdrawn from a vein of the donor, and injected subcutaneously into the arm of the recipient; in 3 cases, however, mosquitoes which had previously been fed on an infected patient were used to inoculate patients. These mosquitoes were supplied and the inoculation supervised by Lieut.-Col. S. P. James, M.D., of the Ministry of Health.

At first the course of the malarial fever was controlled by the clinical picture, but later, blood slides were taken daily and the degree of infection watched. An end to the fever was obtained by 2-gr. doses of quinine sulphate, given three or four times a day for two months, and in no case was it found necessary to give more. No signs or symptoms of malarial trouble reappeared after the first administration of quinine.

It was noticed, however, that the cases which were inoculated in January, 1924, exhibited more serious rigors and experienced greater prostration than those inoculated at first. The seriousness of the clinical condition corresponded also with a greater number of parasites detected in their blood-films.

As no further cases were inoculated at Hanwell after March 14, 1924, the question as to whether the strain was becoming too potent did not arise, but on inquiries being made at Colney Hatch Mental Hospital, to which the Hanwell strain of malaria was passed, it was learnt that the strain, far from becoming too potent, was becoming attenuated, and steps had been taken to refresh it.

As this weakening of the strain seems to be a common feature in the London County Mental Hospitals, perhaps the Hanwell cases which exhibited severer reactions to inoculation were patients who had an idiosyncrasy to malaria.

A tree is attached to show the path of infection from patient to patient.

The patients underlined are female; the dates behind their initials are those on which the injections took place, and those patients marked with * were bitten by mosquitoes previously fed on the patient marked **.

In the case of the male patient A. V. P—, the bites of the mosquitoes did not result in fever, and he was later syringe-injected (with a successful result) from a patient who had been inoculated by mosquitoes. The women were all injected by syringe, and where a name appears twice, the injection on the first date was unsuccessful.

In reviewing the 29 male cases treated by malaria, it will be seen that 19 are living and 10 have died; of these, 3 died while the malaria was still active.

Of the 19 living, 12 are still in a stationary condition while 5 have been discharged recovered, and satisfactory reports have been received either from the patients themselves or from their nearest relatives; 1 is about to be discharged as recovered from Rainhill Mental Hospital, where he was transferred on December 23, 1924, and 1 is greatly improved, but remains at Hanwell. The results of the treatment of the female cases are even more satisfactory. In all, 7 women were inoculated; of these 2 are now in a stationary condition, 1 has died, and 4 have recovered and have been discharged. Letters have been received from their relatives to say they are keeping well mentally, and are in good physical health.

Thus the series of all 36 cases can be divided into three groups, A, B and C.

Group A.—10 cases—those which have improved so much that they have been discharged as recovered and returned to home life.

Group B.—15 cases—those which have improved too little or have not changed as the result of treatment.

Group C.—11 cases who have died.

V. J. G——This patient was a police constable, and was admitted presenting a clinical picture of extreme confusional insanity, extreme restlessness, inability to appreciate the intentions of those around him, full of irrational statements and noisy and abusive. The history given by his wife states that although he had been queer for some time, the confusion only appeared about 14 days before his admission.

The physical examination revealed nothing pathological, except a sluggish pupillary reaction to light and shade. He admitted that he had had syphilis, and that he had been treated at Rochester Row Hospital on February 4, 1910. On further questioning he stated that he had been attending the Maudsley Hospital, and from there he was sent, still very ill, to the Infirmary. On making inquiries at the Maudsley Hospital it was learnt that his conduct became too unreliable for further treatment there, and that while there his serum and cerebro-spinal fluid were found to be both strongly positive to the Wassermann reaction.

He was inoculated at the Tropical Diseases Hospital on July 12, 1923. He exhibited the usual signs and rise of temperature of malarial fever until it was controlled by quinine sulphate on August 5, 1923.

By September 10 considerable improvement was noticed, the intellectual confusion was gone, insight had returned, and he was able to appreciate the meaning of what was said to him, but a certain amount of emotional instability was still present, but to a far less degree, when he was discharged to the care of his friends as "recovered" on October 29, 1923.

A letter was received in January, 1925, from his wife, who states that he is "doing well," and earning his living as a doorman at a cinema.

C. B—, a merchant seaman, æt. 28 when admitted on February 26, 1923. His wife gave a history of change of personality of six months' duration, but it was not until 14 days before his admission that his irrational conduct, mental inertia and emotional depression caused her to suspect him of being out of his mind.

On admission he was emotionally depressed and intellectually deluded about the purport of a telegram he states he saw a little girl tear up—he was convinced it was for him, stating his father-in-law wanted him at once in Bristol. He was confused, and expressed other irrational statements.

Physically he was in fair condition and health, but his pupils were unequal, did not react to light, and his speech was slurred. On May 14, 1923, his cerebro-spinal fluid was found to be strongly positive. He was inoculated with malaria on July 29, 1923, unsuccessfully, and again on August 11 successfully, developing a rigor and rise of temperature on August 14. On September 4, 1923, quinine was administered. He improved steadily. Physically his pupillary signs did not alter, but his speech became clearer and his whole condition stronger. Mentally, however, the improvement was remarkable, his irrational statements had ceased, he argued logically, criticized his past conduct with insight and appeared quite well.

He left the hospital recovered on December 7, 1924, to resume his work as a seaman.

In answer to our request for information about him in January, 1925, a letter was received from his mother, stating that the patient had made two voyages in a Red Star liner to New York, and then worked his way as A.B. in a Cunarder to Australia. In Australia he had found employment in a hotel as handyman. He wrote home in the beginning of January, 1925, saying he was happy and doing well. The mother stated that his handwriting had improved a great deal since his first letters home.

G. E. G——This patient was a jeweller by trade, who since the war had attempted poultry farming.

He was admitted æt. 45. Mentally he was boastful about his racing successes; was euphoric and extremely elated. He was amnesic, gave contradictory answers to questions, and was generally irrational in what he said and did. He claimed to be a baronet and to have plenty of money.

Physically he had a tremulous tongue, his speech slurred, was ataxic in gait, knee-jerks were absent, Rombergism was present, pupils did not react to light, and the right was larger than the left. He also suffered from apical tuberculosis on both sides and cavity-formation was suspected in the right lung.

He was inoculated on September 8, 1923. The malarial fever commenced on

September 18, and was controlled by quinine on October 8. He improved mentally very rapidly, but physically was very handicapped by his tuberculosis, and took a long time to convalesce. By December 10, 1923, he improved so much mentally that he was sent out on trial to his wife, although in a poor state of health, and finally discharged as recovered on January 7, 1924.

On discharge the physical signs of nervous disease were absent knee-jerks, slight slurring of articulation, slight tremors of the tongue, which was less than on admission, and he only swayed very slightly on standing with shut eyes and his feet close together. Mentally he was quiet and composed, had insight and was rather serious in manner as he realized the nature of the disease for which he had been treated.

M. H. R. A.—This patient was a German hairdresser, *æt.* 51, who was admitted as a typical general paralytic on December 22, 1923. He was elated, had no insight, was confused and boasted he was worth £93,000, and could give anyone what they asked for in the way of money. Physically he was in fair health and was well nourished. He hesitated in his speech and pronounced his words carefully and spaced them, but did not definitely slur. The knee-jerks were absent, pupils unequal and didn't react to light, and the consensual reflex was also absent.

He was inoculated January 15, 1924; rigors started on January 24, and quinine was administered February 2. He improved rapidly, and was eventually discharged as recovered on August 18, 1924.

On two occasions has he written to say that he is keeping well, one letter from Southend in September, 1924, when recuperating by the sea, and another from Delkey, near Dublin, where he had obtained a post as assistant hairdresser. He writes them himself in a clear, firm hand, although the wording is that of a foreigner.

J. M.—, a ship's fireman, *æt.* 29, was admitted October 26, 1923, mentally confused and acutely hallucinated, being persecuted by abusive and threatening voices. The lack of sleep and restlessness that these hallucinations caused rendered him physically exhausted. Neurologically he presented only unequal pupils which did not react to light.

He remained acutely hallucinated, and exhibited phases of confusion and he had to go to bed on account of his restlessness.

On December 23, 1923, his blood and cerebro-spinal fluid were found to be strongly positive, with an excess of cells and protein in the cerebro-spinal fluid.

On January 16, 1924, he was inoculated with malaria. From January 17 onwards he exhibited a high temperature and rigors, but large numbers of parasites found in his blood on the latter date caused quinine to be administered on January 29.

Within a very few days of cessation of the fever mental improvement was noticed; the acute hallucinations became fewer and soon left him altogether. He then entered a dull and lethargic, mildly confused stage, which persisted until his transfer to Rainhill on December 22, 1924. He was considered at first a case that should belong to Group B, but in answer to a letter the Medical Superintendent of Rainhill Mental Hospital wrote on March 9, 1925, that *J. M.*— had improved so much that he was about to be recommended for discharge.

W. P.—, a patient *æt.* 57, a carman, who was admitted on January 22, 1924, in an extremely confused condition. In the course of examination he was found to be well nourished, but to have chronic bronchitis and emphysema, and to be suffering from psoriasis on the elbows. Neurologically he was generally tremulous, his gait was ataxic, his knee-jerks were absent and Rombergism was present. His pupils were pin-point, reacted to accommodation, but failed to light.

An examination of his cerebro-spinal fluid and serum revealed a strongly positive reaction in both.

He was inoculated March 14, 1924; rigors commenced March 28, and were controlled by quinine on April 5.

He improved mentally, but although he gained in health, his neurological signs of paresis did not alter. Finally he took his discharge to the workhouse on October 4, 1924.

In January, 1925, in answer to our letter of inquiry, he wrote to say he was going on very well, but was kept in the infirmary on account of a recrudescence of his skin trouble.

A. W.—(female), a married woman, æt. 34, who was admitted on May 8, 1923, presenting great mental confusion and restlessness.

Physical examination revealed general and tongue tremors, irregular pupils and sluggish light reflex, otherwise nothing abnormal.

The serum and cerebro-spinal fluid were returned both strongly positive to the Wassermann reaction.

On August 13, 1923, she was injected with the malarial parasite, as the previous injection on July 29, 1923, bore no apparent result. She exhibited the malarial fever from August 14 until September 8, when quinine was administered.

On March 6, 1924, slight improvement, both mentally and physically, was noticeable, especially intellectually, but she was still very unstable emotionally. Steady improvement took place all the year 1924, most marked from the intellectual aspect, and she was finally sent on trial to her father on March 2, 1925. She was discharged recovered; her physical signs had all lessened except the inequality of the pupils and a slight sluggishness to the light reflex.

J. R. H.—(female).—This patient, a married woman, was admitted April 9, 1923, after the birth of a child, and her breasts were still active. She was extremely confused intellectually, depressed emotionally, and purposeless in conduct.

Physically she had tremors of the tongue, unequal and Argyll-Robertson pupils, but no slurring of speech or Rombergism. Her blood and cerebro-spinal fluid were both strongly positive to the Wassermann reaction.

On August 13, 1923, she was injected with malarial parasites, the temperature became elevated on August 20, and on October 12 quinine was administered to control the fever.

By November 2 definite improvement was noticeable, and her husband at once wanted her to be sent home, but he was persuaded to leave her until March 24, 1924, when she left much improved, although still somewhat foolish.

The physical signs had not altered except that the tongue tremor was hardly distinguishable; she was, however, in much better health and in stronger condition.

In January, 1925, the husband answered our letter of inquiry and stated that she was "quite well in herself, and only troubled by an ulcer on the leg."

J. W.—(female), a married woman, æt. 36, who was admitted on September 20, 1923, in an extremely confused condition, who said she was a millionaire, and who was depressed at one moment, for no reason she could explain, while being, shortly afterwards, as unreasonably elated.

Physically she could not walk steadily, as she was feeble, but no Rombergism was present. She slurred her speech and exhibited tremors of tongue and lips. Her pupils were unequal, did not react to light, and were sluggish in accommodating.

On October 3, 1923, her blood was strongly positive to the Wassermann reaction. On October 6, 1923, she was inoculated, and from October 23 suffered from malarial rigors until November 7, when quinine was administered.

She improved considerably. The confusion and the motor restlessness cleared up as soon as the quinine was administered; she remained emotionally unstable, and intellectually was simple and childish. She was discharged on April 10, 1924, before it was desirable, but owing to the husband's urgent wish.

He writes, in January, 1925, to say she is very well indeed, and he has nothing whatever to complain of with regard to her mental condition.

E. E.—(female).—This patient was a married woman, æt. 29, who was admitted on January 21, 1922.

She was emotionally unstable, amnesic, and unable to give a clear account of herself. She was excitable and garrulous, and wrote numerous letters and descriptions of obscene acts on pieces of paper. When contradicted or controlled in any way she was noisy and used very foul language.

She presented no physical signs except a fixed left pupil in a dilated state. As there was a history of iridectomy this was not conclusive.

She admitted alcoholic excess and a life of excitement and immorality with men at the munitions works while her husband was at the war.

On January 26, 1922, her blood was strongly positive to the Wassermann reaction. She was treated vigorously with neoarsenobillon, but did not improve, and by July 25, 1922, she had entered a fat and stuporose condition with considerable tremor of lips, tongue and hands. While in this state she was injected

with malarial blood first on October 23, 1923, with no result, and later, on November 7, 1923, with a successful result.

She did not experience many rigors and was therefore allowed to exhibit mild rises of temperature until December 14, 1923, when quinine was administered. By January 7, 1924, she was happy and fat, and about the ward working. She steadily improved, became much thinner, firmer in all her movements and intelligently active. She was discharged as recovered on February 28, 1924.

Her husband writes in answer to our letter of inquiry in January, 1925, to say that "his wife is going on splendid and keeping in the best of health."

A short note has been given of each of the cases in Group A, as the interest lies chiefly in this group, and it is from these cases that most of our conclusions are drawn.

As the treatment was being tried for the first time at Hanwell, no selection of the cases was carried out beyond the fact that we were satisfied that they were cases of general paralysis, and were physically strong enough to undergo an attack of malaria.

Unfortunately it was not possible to obtain a satisfactory specimen of cerebro-spinal fluid before treatment in every case. The conduct of some of the patients would not permit lumbar puncture, or the fluid was stained by blood. In Groups B and C this does not matter much, but in considering cases in Group A some doubt may be felt as to a correct diagnosis.

However, when those three cases in Group A are examined—J. W— and E. E—, female, and G. E. G—, male—it will be seen that they are undoubtedly cases of general paralysis. E. E— at first might have been considered a case of excessive alcoholism with syphilis, but when she entered the fat and fatuous tremulous stage the diagnosis was certain.

The age of the patients at which the inoculation was performed did not seem to influence the result of treatment; the four youngest cases to improve (V. J. G—, C. B—, J. M— and E. E—) were aged about 30, while the oldest was W. P—, aged 57; the stationary cases showed equal variations in age, as did those that died.

In all three groups the history of syphilis was unreliable. In many cases no information about venereal disease is obtainable, and in 4 cases, V. J. G—, J. M—, C. B— and M. H. R. A—, syphilis is denied; one, G. E. G—, states he was treated for syphilis ten years previous to admission to Hanwell; another, W. P—, states he was treated thirty years before, and the naval records of J. M— show he was treated in 1915. A. W—, J. R. H— and J. W— give histories of miscarriages within three years of admission, but although suggestive, this is not conclusive, and E. E— gives a period of two years. The same inconclusive information was obtained from the cases in Groups B and C.

When investigating the period that had elapsed between the onset of mental symptoms and treatment by malaria, it is noticed

that in Group A cases the longest period is two years (in the case of J. R. H—). All the others in that group were found to have exhibited mental symptoms or changes in personality within twelve months or less before treatment.

Cases were found, however, of equally short duration in Groups B and C, but here were also found cases in which a long history of mental change was noticed. The symptoms dated back in the case H. W— Group C, six years, and in cases F. M— and H. McF—, Group B, four and three years respectively.

It is probable that cases exhibiting a long history of mental symptoms are not so likely to improve as those of more recent history, although a patient with a short history has not necessarily a hopeful prognosis.

The degree of mental abnormality at time of treatment is no criterion of what is likely to happen after the malarial fever.

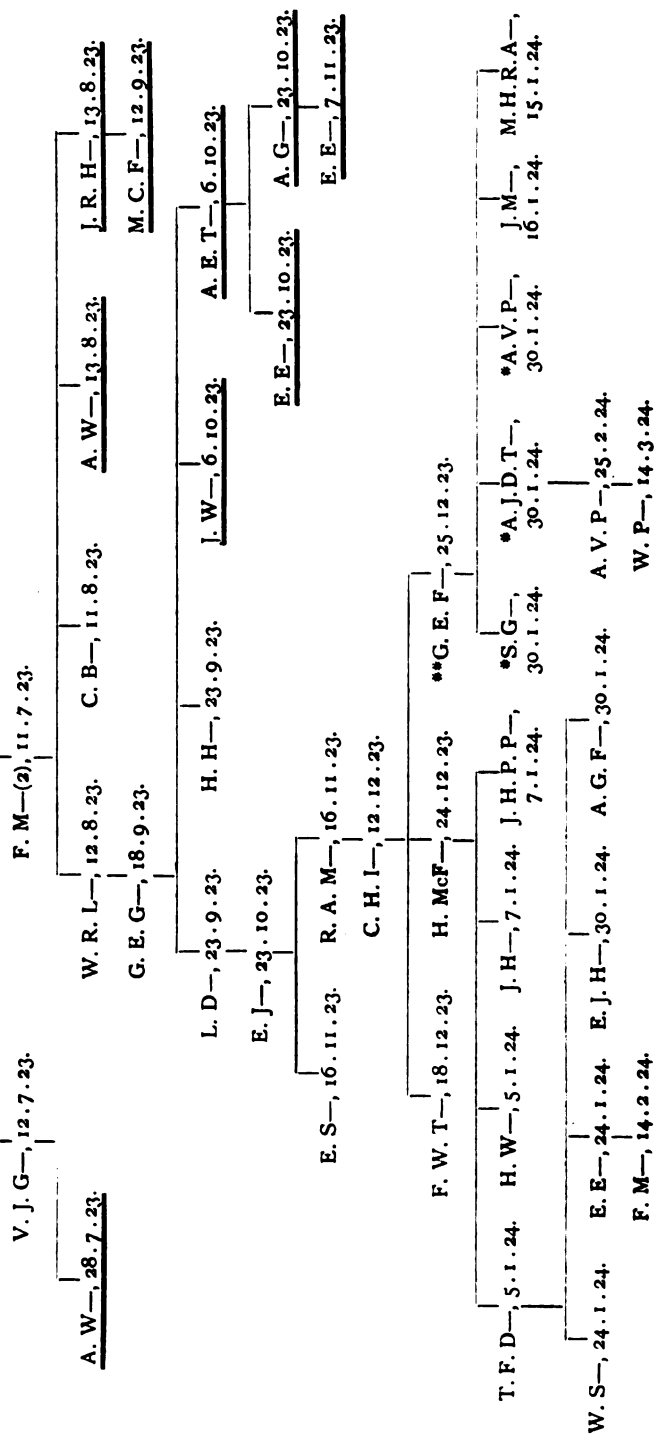
All the cases in Group A were very confused, and cases J. M—, G. E. G—, M. H. R. A— and J. W— exhibited delusions of grandeur as well, while the dominant symptom in J. M— was acute hallucinatory trouble; the same variations of mental abnormality were met with in cases in both groups B and C. In these groups confusion was met with in all cases to a greater or less degree, and delusions of grandeur were marked in A. J. D. T—, F. M— (2), E. E— (male), H. W—, and T. F. D—.

Although in Group A the mental symptoms cleared up in such a satisfactory manner, the neurological signs did not alter correspondingly, and except for a diminution of the tongue, lip and general tremors in cases E. E—, A. W— and J. R. H—, no improvement was detected. The general physical condition improved, but no absent knee-jerks returned, nor did pupils react to light or become mobile if fixed before treatment.

In two cases, S. G—, Group B, and E. E—, Group A (female), the rise of temperature was slight and the rigors not severe. They were therefore allowed to continue exhibiting mild rises of temperature for much longer than were the others. E. E— eventually recovered, whereas S. G— remains in a stationary condition.

Not a great deal of time has passed, and more certain information will be gained later on, but it is noticed that although the patients do not improve sufficiently to justify discharge, in many of the patients in Group B their condition seems to have become stationary—they neither improve nor deteriorate. It will be interesting to see whether the treatment has arrested deterioration, although it has not caused a cure.

Patient at Endsleigh Gardens Hospital.



GROUP A.

Case.	Sex.	Date of admission.	Age on inoculation.	W.R. on serum.	W.R. on C.S.F.	Date of inoculation.	Date of first rigor.	Date of quinine first given.	Date of discharge.	Report from relatives.
V. J. G— .	M.	21.4.23	31	+	9.5.23	12.7.23	18.7.23	5.8.23	29.10.23	Is earning his living, January, 1925.
C. B— .	M.	26.2.23	28	—	14.5.23	11.8.23	14.8.23	4.9.23	7.12.24	Earning his living, January, 1925.
G. E. G— .	M.	30.6.23	45	+40†	7.9.23	8.9.23	18.9.23	8.10.23	7.1.24	Was keeping a poultry farm when last heard of, June, 1924.
M.H.R.A.—	M.	22.12.23	51	+40†	7.1.24	15.1.24	24.1.24	2.2.24	18.8.24	Earning his living, January, 1925.
J. M— .	M.	26.10.23	29	+40†	23.12.23	16.1.24	17.1.24	29.1.24	22.12.24	Transferred to Rainhill Mental Hospital.
W. P— .	M.	22.1.24	57	+40†	4.2.24	14.3.24	28.3.24	5.4.24	4.10.24	About to be discharged March, 1925. Is keeping well mentally, and writes a good letter, January, 1925.
A. W— .	F.	8.5.23	34	+40†	8.6.23	13.8.23	14.8.23	8.9.23	2.3.25	Doing well.
J. R. H— .	F.	9.4.23	40	+40†	21.7.23	13.8.23	20.8.23	12.10.23	24.3.24	Is doing well at home, January, 1925.
J. W— .	F.	20.9.23	35	+40†	3.10.23	6.10.23	23.10.23	7.11.23	10.4.24	Is doing well at home, January, 1925.
E. E— .	F.	21.1.22	30	+40†	26.1.22	7.11.23	17.11.23	14.12.23	28.2.24	Is doing well at home, January, 1925.

GROUP B.

Case.	Sex.	Date of admission.	Age on inoculation.	W.R. on serum.	W.R. on C.S.F.	Date of inoculation.	Date of first rigor.	Date of quinine first given.	Present condition.	Remarks.
L. D—	M.	15.3.20	55	+40	15.12.23	—	23.9.23	11.10.23	Stationary	—
E. J—	M.	25.3.22	43	+40	31.3.22	+40	23.10.23	10.11.23	"	—
C. H. I—	M.	6.11.23	49	—	—	+40†	14.11.23	18.12.23	"	Discharged, not improved, 7.6.24; same 25.1.25.
H. McF—	M.	21.9.23	36	—	—	+8	5.12.23	1.1.24	"	—
G. E. F—	M.	23.11.23	39	+40†	15.12.23	—	25.12.23	10.1.24	"	—
J. H. P. P—	M.	20.11.23	43	—	—	+ +	20.11.23	15.1.24	"	—
W. S—	M.	10.9.23	51	+40†	23.12.23	—	24.1.24	3.2.24	"	—
E. E—	M.	31.12.23	39	+40†	7.1.24	—	24.1.24	5.2.24	"	—
E. J. H—	M.	30.12.22	41	+40†	20.1.24	+40†	20.1.24	14.2.24	"	—
A. J. D. T—	M.	11.1.24	30	+40†	23.1.24	+40†	23.1.24	14.2.24	"	Transferred to The Lawn Mental Hospital, 23.12.24.
S. G—	M.	18.5.23	38	+40†	23.1.24	+40†	23.1.24	15.4.24	"	—
F. M—	M.	26.1.24	55	+40†	4.2.24	+40†	4.2.24	24.2.24	"	—
F. M—(2)	M.	20.10.21	54	—	—	+8	17.1.23	25.7.23	Improved	—
M. C. F—	F.	13.12.22	51	+40	12.8.23	+40	8.9.23	6.10.23	Stationary	—
A. E. T—	F.	28.3.23	35	+40†	8.9.23	+40†	6.10.23	11.10.23	"	—

GROUP C.

Case.	Sex.	Date of admission.	Age on inoculation.	W.R. on serum.	W.R. on C.S.F.	Date of inoculation.	Date of first rigor.	Date of quinine first given.	Date of death.	Remarks.
W. R. L— .	M.	20.7.23	51	—	+20	11.8.23	28.8.23	—	13.9.23	Appeared to be doing well, then collapsed.
H. H— .	M.	23.12.22	35	++	++	23.12.22	8.10.23	—	12.10.23	Ditto.
E. S— .	M.	13.10.23	51	—	+40†	12.11.23	27.11.23	10.12.23	11.12.23	"
R. A. M— .	M.	26.3.23	43	+40†	+40†	13.11.23	2.12.23	12.12.23	17.1.25	No improvement.
F. W. T— .	M.	15.6.23	38	—	+40†	27.11.23	29.12.23	14.1.24	20.3.24	—
T. F. D— .	M.	18.12.23	32	+40†	—	—	18.1.24	31.1.24	28.2.24	—
H. W— .	M.	10.9.23	40	+40†	+40†	22.12.23	27.1.24	21.2.24	1.11.24	—
J. H— .	M.	22.8.23	45	+40†	—	17.12.23	23.1.24	1.2.24	1.2.24	—
A. G. F— .	M.	9.1.24	48	+40†	+40†	23.1.24	7.2.24	11.2.24	24.4.24	—
A. V. P— .	M.	17.1.24	36	—	+40†	28.1.24	5.3.24	14.3.24	30.10.24	—
A. G— .	F.	8.8.22	45	+40†	—	—	30.10.23	9.11.23	21.12.24	—

CONCLUSION.

From such a small number of cases it is impossible to consider any conclusions as final, but one is impressed by the successful issue of as many as 10 out of 36 (27·7 *per cent.*), especially as four of the men are earning their living, and all the women useful in their homes. The chief points gained from a consideration of these 36 cases are :

(1) That inoculation by malaria (*Plasmodium vivax*) at present seems a far more hopeful method of treatment than any other.

(2) The age of the patient does not seem to influence the result of the treatment.

(3) That a long-standing history of syphilis does not necessarily prejudice the result.

(4) The shorter the period of pathological mental change before treatment, the better the prognosis.

(5) The type or severity of the mental symptoms does not seem to affect the result.

(6) The neurological signs do not change after treatment, even if the patient recovers mentally.

(7) It is not necessary for the attack of malarial fever to be severe: a mild prolonged attack was effective in one case.

(8) The strain at Hanwell was controlled by quinine in constantly repeated small doses for two months, and no febrile relapses occurred.

(9) No difference could be detected in the course of the malaria whether inoculated by syringe or by mosquito bite.

The Hospital is very grateful to Lieut.-Col. S. P. James for his advice, and the interest he has displayed in the cases he supervised at Hanwell, and to the Director of the Pathological Laboratory, Maudsley Hospital, who supervised the Wassermann reaction tests.

These notes are published by permission of Dr. A. W. Daniel, the Medical Superintendent of the Hospital.

A Problem in Diagnosis. By ALAN F. GRIMBLY, M.A., M.D.,
D.P.M., Second Assistant Medical Officer, Severalls Mental
Hospital, Colchester.

ON not too infrequent occasions one may encounter an instance of a disordered mind that baffles the combined efforts of the most astute diagnosticians, but the difficulties presented by the case described appear to be of unique rarity.

A. B.—had served in the Army abroad during the Great War, and had apparently attained a high degree of proficiency and the rank of company sergeant-major. He was stated to have contracted dysentery at the Dardanelles, and with reference to his habitual disposition, he had been "peaceful and good-tempered normally, but high-spirited." He was sent to a military hospital in England early in 1917 and shortly afterwards transferred to another military hospital, where he remained for ten months. He was subsequently certified as being of unsound mind—"mentally enfeebled, dull, unoccupied and taciturn"—and he was admitted to Severalls Mental Hospital on February 11, 1918. Apart from the foregoing we have no evidence of the nature of the early manifestations of the psychosis. His age on admission was 40½ years.

His mental state on admission was typical of katatonia. He was negativistic, mute, and sat always in one fixed position with his head down between his knees, holding on firmly to the seat of his chair. His muscles were taut, his hands were clenched, his toes flexed, and his insteps arched; his deep reflexes greatly increased. His face was screwed up and contorted, and his eyes were firmly closed. His face and his extremities showed a tendency to cyanosis, but were rarely cold. He resisted all attempts at passive movement. He walked with a shuffling gait, and held himself in a constrained attitude. When he exercised in the gardens his beat never varied, and he would continue to walk until led to a seat. Only on one or two occasions was he heard to speak, as, for instance, when he stumbled over some other patient and gave vent to a volley of oaths. The patient would feed himself when the food was placed in front of him; his habits were never defective.

This state of mind remained unchanged during the ensuing three years. Then, at a quarter to one in the morning of January 11, 1921, the patient awoke, complained of giddiness, and asked to see a medical officer, which request was immediately granted. He stated that he had dreamed that he was in a double bed at Acle with Sergeant A—. He noticed that an opposite bed, usually occupied by a batman, was vacant, and he called out in his dream, "Where's A—?" He then seemed to wake up.

On the following day he appeared to be perfectly normal. There was no apparent defect in his reasoning powers or judgment, and his remote memory was accurate; indeed, he showed a hypermnesia for events that had occurred during his service abroad and at home. But he exhibited a complete amnesia for the period between March, 1917, and January, 1921. His general intelligence was of a high order, and he was possessed of a fine sense of humour, referring to himself, when he had grasped the salient features of his case, as Rip van Winkle.

On the same day he wrote the following letter to his brother:

January 11, 1921.

DEAR G—,—I am writing this note after, it appears, three years' oblivion. I can recollect things from the beginning of the war as far as March, 1917; the remainder is a blank. I awoke last night and discovered I was a patient in the above institution, where, strangely enough, we were billeted in 1915. I little thought then that I should return here to be taken care of for that long period. The attendants tell me I have not spoken a word since being here until last night, when I came to myself. I am thankful to be able to say that I am now quite *compos mentis*, and should be glad if you could arrange to take me out, so that I can resume duty in the outside world. Just a rough outline of my doings since we left England on July 25, 1915.

We embarked on the transport "S—" at D— on 23.vii.1915, and sailed on the night of the 25th under sealed orders, and reached A— by a circuitous route (on account of submarines), fourteen days later. We sailed again the next day and landed at Suvla Bay, Gallipoli, on Wednesday, August 11, and got under fire on Anafarta Plain on the 13th, where we received a rather warm welcome. Next day we started off on a forced march to relieve some of the — Regt., who had been doing trench duty for some weeks, and rapid fire was the order of the day, during which march I was knocked over by a shell, but was fortunate to escape with a severe bruise only. We remained in the trenches a few days, lost our adjutant and several other officers and men, and were relieved by the — Regt., on which we proceeded upon the razor-back known as "Walter's Ridge," and reinforced the — there. Here we lost our C.O., wounded, M.O. Lieut. —, killed, and about 12 N.C.O.'s and men wounded. Four days later another

forced night march along the beach of Suvla Bay and W. Beach, where we were for duty unloading lighters at the Engineers' Dump. While here the — Batn. moved up and unfortunately lost forty men by one shell, 8 killed and 32 wounded; two days there and then off to Australian Gully, where we relieved the — and — and occupied the trenches until December 4, 1915, when we evacuated on the Trans-Atlantic cattle-boat "E—" and proceeded to Mudros, one of the Grecian Islands. After a week there we embarked on the transport "M—" and sailed for Alexandria, from which port we marched to Mex Camp, about three miles. After spending Xmas week there we were sent up on the line of communication—Alexandria to El Debbar, I myself being at No. 14 Post, "Ikingi-Mariut"; next move to Shallufar on the Suez Canal, and from thence to outlying detached posts on the desert, viz., "Oldham," "Wigan," "Salford," named after north country towns by, I believe, the Manchesters. After about 10 months of desert trench digging and route marching in 120° heat, I am sorry to say I began to crack up. I hung on until I was ordered to go sick, and was then sent in to the — Ambulance with several others; from there to a Convalescent Depot at Boulac, and thence to England *via* H.S. "V—" to Sicily, then by the H.S. "A—" to Southampton. We then proceeded to Sheffield by rail, arriving at the — Hospital by the end of December, 1916. I was sent on sick leave about December 29 for eight days, and then reported to the reserve battalion at Wendover. I was taken queer while there, partly, I have no doubt, due to the extreme change of climate, and was then ordered to Aylesbury for a week, and to proceed home for another eight days; then I hoped to rejoin my regiment in Egypt. I entered a motor ambulance in the middle of March, 1917, and to the best of my knowledge had a smash-up. From that time until January, 1921, is absolutely a blank. That is my history from July, 1915, and I hope that you will endeavour to obtain my release from this institution as soon as possible. I am addressing this to your last known place of residence and trust it will reach you safely. Please give my best wishes to all at home.

Hoping to hear from you shortly,

I remain,

Your affectionate brother,

A—

He remained in an apparently normal state of mind during the following day, but on the third day he gradually became clouded in consciousness, less accessible in progressive degrees, and ultimately reverted completely to his former stuporose condition less than seventy-two hours after his dramatic dream-entry into the normal life.

The case has been recorded up to this point by Dr. R. C. Turnbull, Medical Superintendent of the hospital (¹), and it has been necessary to quote the above letter in full, in order to compare this stage with subsequent developments, and to complete the clinical picture.

At twenty minutes past one in the morning of July 13, 1923, after a period of stupor lasting two and a half years, the patient woke again.

The following is a *précis* of my notes made at the time:

Patient awoke at 1.20 a.m. to-day. He got out of bed and asked the attendant for a glass of water. He stated that the date was "January 12, 1921, Wednesday," and that "yesterday, January 11, 1921," he had written to his brother in Lowestoft, asking to be removed from this institution. He orientates correctly for his surroundings, and states that he had an interview with the Medical Superintendent "a few hours ago—yesterday" (11.i.21). 7.30 a.m.—He tells me that it seems to him that he spent yesterday in this ward talking to the other patients, but that he has now been convinced by documents that he has seen bearing the date, 13.vii.23, that he must have been asleep for over two years. It appears to him that he went to bed in this ward at 7.15 last night (11.i.21). He recollects waking up "on Monday night, 10.i.21," in a sort of dream. Seeing an empty bed close

to him, he called out in the belief that he was in an old billet in Acle, Norfolk, that he left in 1915. He remembers writing to his brother "yesterday," and is anxious to know if the letter has been posted. He tells me that he can remember nothing that has happened—

(a) Between the time of "a kind of crash" in a motor ambulance in the middle of March, 1917, and waking up in this institution on "Monday night, January 10, 1921."

(b) Between going to bed at 7.15 "last night" in this ward—i.e., on 11.1.21, and waking up at 1.20 a.m. this morning (13.vii.23).

His memory for events that occurred during his Army career is clear and detailed.

9.30 a.m.—Patient remains clear in consciousness and rational in his conduct. He has taken a good breakfast, and is at present writing a full account of himself to his brother.

In the course of the day he wrote the following letter, which invites careful comparison with the homologous letter of January 11, 1921:

July 13, 1923.

DEAR G—,—I regret to have to tell you, that since my last letter, dated 11.1.21, I have had a relapse lasting until the present date. As I have up to now no definite knowledge as to whether you received it or not, I will endeavour to repeat it.

It contained an abridged account of my doings from the commencement of the war. After training in England for about twelve months, we embarked on the troopship "S—," and sailed under sealed orders, reaching Alexandria about August 7. We remained there until the following day and then sailed for Gallipoli, arriving there and landing on August 11, 1915. On the 13th we came in touch with the Turkish forces, and after a considerable engagement were ordered to retire. We lost several officers and men during this movement, the enemy shelling us from a flank; evidently they had the ground properly arranged. I had a narrow escape from a shell that burst immediately over my head, but fortunately it blew forward and I got off by being knocked down by the concussion. Next day we advanced up again and a shell came over and burst over our heads, killing one man, wounding another, and a bit caught me on the right brace of my equipment, and sent me spinning—on this occasion I escaped with a bruise which extended from my collar-bone to navel, and about three inches wide, and which showed up in all the colours of the rainbow. We pushed forward for the purpose of relieving the —, who had been holding their trenches for a considerable period. During this advance we had to cross some well-ranged ploughed fields, where it fairly rained lead, and we lost several other officers and men. After being there for a few days we were relieved by the — and made a move up on to a ridge known as the "razor-back," where we reinforced a detachment of the —. We proceeded to march round Suvla Bay to a new position, and while there my platoon had a narrow escape.

We had been ordered on fatigue work and left our equipment on the shore close under a low cliff, and while away a company of the — Battalion came up and occupied our place, in fact, on top of our goods. During the early morning the enemy sent over a large shell which burst right on top of them with a total of forty casualties, 8 killed, 32 wounded. A few days later we moved off and relieved the —, having the — on our left and the — and — on our right. We remained there until the evacuation and left on December 4–5, on the Trans-Atlantic cattle-boat "E—," arriving at Mudros, one of the Grecian Islands, a few days later. After about a week there we left for Egypt on the London boat "M—." From there we proceeded to Shallufar on the Suez Canal, and thence on to the line of communication Alexandria to El Debbar, my place being at a place called Ikingi-Mariut, about the centre of the line. We relieved the —, who had been there several months. The fortification, however, did not suit our Brigadier, who soon got us to work on general alterations. This work, including day and night patrols, kept us fully occupied from 3.30 a.m. until we turned in about 11 p.m. After a few weeks' stay we left for the Pyramids training camp, and from thence proceeded to the outlying posts on the desert about nine miles out from the canal. Here we relieved the — Regt., who had named the posts after the north country towns—Salford, Wigan, Oldham, etc. On these posts all material, rations, etc., were brought by camel convoy, water being stored in long iron drums sunk in the sand. The heat was great, registering from 112° to 120° in the tents. From these

posts long marches were made for the purpose of locating the enemy. It was on one of these that I, unfortunately, broke down and was sent to El Shatt, where the job was guarding a large Prisoners of War camp. This only lasted a few weeks, and we returned to the Battalion and resumed the desert marching, which, with the aid of a heat wave, laid out *pro tem* half the troops, and sent about a dozen, including myself, back into hospital. I was passed on to a convalescent depot at Boulac, Egypt, and from there sent to the — Hospital at Sheffield, home for eight days' leave, and then to Wendover Camp, Bucks, where I cracked up, and the medical officer sent me to hospital for a few days' treatment, and then to proceed home for another leave.

But on the way in a motor ambulance there must have been a smash, for I came to one night in bed at this institution about three years later. Last night, 13.vii.23, about 1.20, I became conscious, and with the impression that the date was 12.i.21, as in the first instance. This makes a total of five years and six months I have been here. I should be very glad if you could arrange to call here and see me, and also to arrange to take me out, as I am given to understand that you are the one person to accomplish this, being my next of kin. The authorities here tell me that I have been *helpless* during my spell of oblivion, but in no wise showing any signs of violence. By a coincidence I was billeted at this institution during the latter part of training in England—*viz.*, early in 1915.

Will you please communicate with me at the earliest possible moment, as you can understand my present position is not exactly enviable. Hoping that you are quite well, I remain,

Your affectionate brother,

A.

P.S.—Mr. C—, the ward charge attendant, informs me that my nephew, who from description must be H—, called some time ago to see me, but failed to make any impression. This must have been during 1920. I sincerely hope this present rally will be permanent.

The patient remained in a lucid and rational state of mind for the ensuing twenty-four hours, but between the 14th and the 18th of July he again gradually relapsed into a stuporose mental state, resembling his former phases, but not so profound in degree. From then until the present time he has shown no alteration in his symptoms. He sits on a settee in the ward in a rigid, semi-flexed condition, unoccupied, and quite indifferent to events in his environment. He is able to wash and dress himself and attend to the calls of nature. He takes exercise out-of-doors, and feeds himself at meal-times. On interrogation it is impossible to elicit any interpretable form of reply; he mutters unintelligibly, frowns, grimaces, and exhibits divers facial mannerisms. He has not spoken since July 18, 1923.

From the view that this case is extraordinary in the strictly literal sense, doubtless few will dissent. What will ensue in future months or years? From the preceding record it seems justifiable to predict that the patient will again awake some day as an outwardly rational, oriented being, but who will describe the events of July 13, 1923, as those of yesterday.

The chief points of interest in the case appear to be as follows:

(a) The patient was 39 years old when first certified of unsound mind. (b) He had previously been a well-educated, intelligent man. (c) The onset of the psychosis was preceded by an initial shock—a vague flash or explosion being the last recollected point. (d) The katatonic nature of the symptoms, apart from the short periods of remission. (e) The remote hypermnesia and complete recent amnesia exhibited during his lucid intervals. (f) The dream nature of the first awakening.

The question of the diagnosis is obviously difficult.

(1) Superficially one would have little hesitation in classing the patient under the heading of katatonia. But there are many points in the history that seem fairly definitely to contra-indicate dementia præcox.

(2) Is the patient living in a prolonged state of epileptic automatism? The absolute amnesia of the waking periods prompts the thought, but there is little else in the evidence to justify the assumption of epilepsy.

(3) From a comprehensive survey of the history it appears that long ago, in March, 1917, the patient encountered some disturbing, explosive force that induced a disintegration of the personality, followed by a dissociation of psychic activity—a dissociation in series rather than in parallel.

Whatever may be the true diagnosis, the case appears to be of sufficient interest to warrant setting forth in some detail, and I wish to express my indebtedness to Dr. Turnbull for permission to quote his article and to publish the further notes of this case.

(1) Turnbull, R. C., "A Case of Katatonia," *Journal of Neurology and Psychopathology*.

A Case of Cerebral Hemiatrophy (?) or Unilateral Hydrocephalus (?). By FRED WILSON, M.B., Ch.B. Aberd., Assistant Medical Superintendent, Central Mental Hospital, Tanjong Rambutan, Federated Malay States.

A. M—, a Chinese girl, æt. 22, was admitted to the Central Mental Hospital on September 14, 1923. She was transferred from another hospital, in which she had been for one year. She was there diagnosed as an imbecile, and was reported as having frequent epileptic seizures and impulsive outbursts.

On admission she was a slightly-built girl, who looked about 14 years old. She was not fully developed sexually, and never menstruated while in hospital. She had spastic paralysis of the whole of the right side of the body. Right facial paralysis and right homonymous hemianopia were noted. The right upper extremity showed advanced wasting and contractures, and the right lower extremity showed the same to a less degree. She was able to walk with difficulty, dragging the right foot along the ground. She was unable to speak, but could make a few inarticulate sounds. She understood simple questions and commands, could feed herself and was clean in habits.

Soon after admission she had an attack of dysentery, and later she developed pulmonary tuberculosis. She became progressively weaker; the contractures and wasting of the lower extremity became more marked; she was wet and dirty in habits, and mental deterioration became more profound. She had no seizures, nor was she ever impulsive or troublesome while in hospital.

She died on November 13, 1924.

Post-mortem examination.—The skull was symmetrical and showed no abnormality. Dura was normal and non-adherent. There was some slight excess of fluid beneath the dura. Cerebellum, pons and medulla showed no gross lesion, nor did the right cerebral hemisphere, of which the membranes were natural; the right lateral ventricle was of normal size, and the brain substance healthy.

The left hemisphere, however, presented a very different picture. The membranes were thickened and opaque, and were almost devoid of blood-vessels. The lateral ventricle was enormously distended with fluid. The ependyma was quite smooth. The brain substance was reduced to $\frac{1}{2}$ in. in thickness, and it was impossible to make out any distinction between grey and white matter. The substance presented a white, jelly-like appearance, and to the naked eye appeared completely atrophied. The membranes could be stripped with difficulty, and it was just possible to see the remains of the convolutions as little dimples on the surface. The weight of the left hemisphere (with membranes) was $3\frac{1}{2}$ oz., while the right weighed 17 oz.

The cause of death was pulmonary tuberculosis, both lungs being full of cavities.

Unfortunately no previous history of this case could be obtained, and the mental condition of the patient precluded the possibility of a satisfactory examination of the nervous system.

The age on admission to an institution (21 years), the absence of any malformation of the skull, and the complete cessation of what were evidently very severe epileptiform seizures, all suggested the possibility that this was a progressive condition, and that the case was more one of dementia than of amentia.

In any case, it must be rare to find such a hydrocephalic condition confined to one lateral ventricle.

I am indebted to the Medical Superintendent, Dr. W. F. Samuels, for permission to publish this case.

The Neutral Sulphur Excretion in Dementia Præcox following Sodium Thiosulphate Ingestion. By S. A. MANN, B.Sc.Lond., F.I.C. (From the Pathological Laboratory of the London County Mental Hospitals, Maudsley Hospital.)

SOME years ago in conjunction with the late Waldemar Koch the author made chemical examinations of the brain in a series of cases of mental disorder (1); in dementia præcox changes in the sulphur partition were found which seemed to indicate that in this disease there was a deficiency for oxidation processes. The following note represents an attempt that has been made to investigate further this point by the administration of sodium thiosulphate to a series of dementia præcox cases and subsequent examination of the urinary sulphur partition. Sodium thiosulphate, $\text{Na}_2\text{S}_2\text{O}_3$, taken by mouth in the main is excreted in the urine as fully oxidized sulphate (2), unless the dosage is excessive, when a diarrhœa is induced. Trachtenberg (2) states that upwards of 18 grm. will cause diarrhœa, but the effect of dosage may be variable. Nyiri (3, 4, 5 and 6), investigating the fate of sodium thiosulphate in the organism, gives the following results. For 1 grm. sodium thiosulphate introduced intravenously from 30–40 per cent. reaches the urine

unaltered; 1 grm. by mouth is excreted as sulphate, and unaltered thiosulphate cannot be detected in the urine. With larger doses, 5 to 10 grm., provided no diarrhœa occurs, the main part can be accounted for in the urine as fully oxidized sulphate, but with each dosage he was able to estimate about 5 *per cent.* of the dose as unaltered thiosulphate in the urine; the urinary sulphur partition was not investigated.

Material.—The subjects were a series of 9 cases (5 male, 4 female) of dementia præcox kindly selected for me by Drs. Mapother and Connolly from the Long Grove Mental Hospital residents. To Dr. Mapother I am also indebted for the supervision of the cases and arrangement of details during the experiment. These cases are compared with two "normals" selected by Dr. Golla from the Maida Vale Hospital cases.

The mental hospital cases were actually selected as suitable for endocrine gland treatment. They approximated to the dementia simplex type; they were sufficiently recent to present some chance of recovery, but had had sufficient residence to exclude the effect of mental hospital environment in considering any change. Their brief notes are as follows:

CASE 1.—E. M. F—, male. Admitted 24.8.21, æt. 17, dementia præcox; discharged recovered 8.4.22.

CASE 2.—A. V. B—, male. Admitted 30.8.21, æt. 20, dementia præcox; still resident.

CASE 3.—L. W—, male. Admitted 25.9.20, æt. 22, dementia præcox; transferred unimproved 1.4.22.

CASE 4.—L. E. F—, male. Admitted 2.7.20, æt. 25, dementia præcox; still resident.

CASE 5.—D. D—, male. Admitted 31.8.21, æt. 19, dementia præcox; relieved 28.4.22.

CASE 6.—I. G—, female. Admitted 25.6.21, æt. 24, dementia præcox; still resident.

CASE 7.—E. A. R—, female. Admitted 1.12.20, æt. 25, dementia præcox; still resident.

CASE 8.—M. A. J—, female. Admitted 5.2.21, æt. 26, dementia præcox; still resident.

CASE 9.—M. E—, female. Admitted 24.5.21, æt. 16, dementia præcox; relieved 3.8.23.

Technique and methods.—The mental hospital cases were kept in bed and on ordinary diet during the whole period. For four days 24-hour urine specimens were collected; for the following four days 5 grm. sodium thiosulphate in about 8 oz. of water were given each morning at 8 a.m., and again 24-hour urine specimens were collected. The quantity of urine passed *per diem* was noted, and the specimens forwarded to the Pathological Laboratory for examination.

In each specimen the total nitrogen and the sulphur partition were determined. For the sulphate determinations the volumetric benzidine method of Rosenheim and Drummond (7) was used

throughout, and Benedict's oxidation (8) mixture in the case of the total sulphates.

The results are expressed as—

Total nitrogen	as grammes	N excreted	<i>per diem.</i>
Total sulphur	" "	S	" " "
Inorganic sulphate	" "	S	" " "
Ethereal sulphate	" "	S	" " "
Neutral sulphur	" "	S	" " "

All the dementia præcox cases gave results of a similar nature, and to effect economy in type the full figures for four cases only will be presented, with a summary of all cases showing the average daily neutral sulphur excretion before and with thiosulphate ingestion.

CASE 3.—L. W—.

Day.	Urine c.c.	Total N.	Total S.	Inorganic S.	Ethereal S.	Neutral S.
1	1,080	8.316	0.5875	0.4148	0.0760	0.0968
2	850	8.448	1.308	1.224	0.0544	0.0299
3	960	11.03	1.051	0.8174	0.1106	0.1228
4	1,250	11.78	0.944	0.8019	0.042	0.1
		5 grm. sodium thiosulphate each morning.				
5	990	8.352	1.766	1.647	<i>Nil</i>	0.1188
6	1,130	10.16	2.292	2.052	"	0.2395
7	1,020	8.569	1.755	1.534	"	0.2204
8	1,130	9.936	2.006	1.822	0.0542	0.1266

CASE 4.—L. E. F—.

1	1,130	8.037	0.593	0.4484	0.0615	0.0828
2	850	9.093	1.425	1.308	0.0789	0.0381
3	910	3.517	0.278	0.2184	0.0145	0.0451
4	516	5.056	0.421	0.3591	0.0326	0.0392
		5 grm. sodium thiosulphate each morning.				
5	710	10.18	1.801	1.579	0.0341	0.1875
6	1,020	7.827	1.485	1.273	<i>Nil</i>	0.2121
7	1,330	5.401	1.356	1.214	"	0.1436
8	570	6.353	1.865	1.514	"	0.3557

CASE 5.—D. D—.

1	1,190	18.36	0.6892	0.5408	0.0533	0.0952
2	1,020	12.63	1.609	1.459	0.0457	0.1044
3	1,130	8.702	0.7321	0.6763	0.0018	0.5420
4	790	10.22	0.8191	0.7129	0.0531	0.0531
		5 grm. sodium thiosulphate each morning.				
5	1,276	12.4	2.557	2.348	0.0102	0.1991
6	1,390	3.97	0.717	0.5948	0.0222	0.1001
7	990	5.627	1.156	0.8989	0.0198	0.2375
8	990	10.21	1.877	1.666	0.0158	0.194

CASE 6.—I. G—.

1	1,530	6.94	0.377	0.294	0.0294	0.0538
2	1,960	9.55	0.627	0.502	0.069	0.0564
3	1,130	7.981	0.578	0.43	0.0868	0.0614
4	850	6.736	0.489	0.394	0.0381	0.0571
		5 grm. sodium thiosulphate each morning.				
5	1,250	10.92	2.46	1.97	0.01	0.4799
6	1,130	5.665	1.789	1.383	0.027	0.3796
7	960	7.152	1.616	1.371	0.096	0.1497
8	960	6.923	1.171	0.896	0.057	0.215

The following inferences can be drawn from the results obtained:

(1) In general the administration of thiosulphate is followed by a diminution of the ethereal sulphate excretion.

(2) The neutral sulphur excretion following sodium thiosulphate by mouth is increased, and this increase is most marked in the dementia præcox cases.

Average Daily Excretion of Neutral Sulphur, expressed as Grammes S.

			Before thiosulphate.		With thiosulphate.
	Normal A . . .		0·0842		0·112
	" B . . .		0·016		0·0622
1	Dementia præcox . .		0·089		0·212
2	" " . . .		0·1336		0·3228
3	" " . . .		0·0874		0·1763
4	" " . . .		0·0513		0·2247
5	" " . . .		0·077		0·1827
6	" " . . .		0·0572		0·3081
7	" " . . .		0·0883		0·1637
8	" " . . .		0·0395		0·177
9	" " . . .		0·0847		0·2042

The above figures show that the excretion of neutral sulphur in dementia præcox cases exceeds not only that of the two normal cases given, but also that of accepted normal variations. On an average the daily excretion varies from 0·08 to 0·16 in grm. calculated as S; it is fairly constant for a given individual, and, as Folin (9) has shown, it is not affected by wide variations in protein intake. It is made up of cystine and related bodies, and its constancy lies in the fact that it is endogenous in origin arising from tissue metabolism. That which the tissues are unable to oxidize is carried away in the general circulation; the part reaching the portal circulation is oxidized by the liver and finally excreted as sulphate, whereas the part flowing direct to the kidneys is excreted in an unoxidized form as neutral sulphur. Thus under ordinary conditions a constant fraction of the neutral sulphur of the organism will appear in the urine, determined by the relative blood-flow to the liver and kidneys respectively. Any cystine or allied substances from protein intake into the alimentary canal is oxidized by the liver and finally excreted as sulphate.

It is evident that following the ingestion of an appreciable quantity of sodium thiosulphate, a certain small part may find its way into the urine unchanged (Nyiri (6)), but the main bulk is completely oxidized and excreted as sulphate.

In view of the results obtained with thiosulphate intravenous experiments it may be reasonably supposed that a central organ, the liver, plays the primary rôle in this oxidation. However, a

dosage of 5 grm. taxes its limits, and a small part escapes oxidation. These remarks may possibly explain the increased neutral sulphur output on the lines of diminished liver function. Following thiosulphate ingestion there is rapid absorption, and not only may incomplete oxidation of the thiosulphate occur, but also there may be a temporary failure to oxidize the neutral sulphur arising from tissue metabolism, and it will pass into the urine in an unoxidized form. This is apparent in the normal cases, but in dementia præcox the organism is unable to adapt itself so readily to the sudden stress, oxidation is less complete, and a larger quantity of neutral sulphur appears in the urine.

It is therefore reasonable to infer from the foregoing experiments that further evidence has been obtained of the failure of the dementia præcox subject to conduct normal oxidation processes. It is suggested that in this instance the site mainly concerned is the liver, but work now in progress in relation to liver function in mental disorders may help to elucidate this point.

The author was unable to detect thiosulphate as such in the urines of the cases under observation, but the quantity (5 *per cent.*) passing through with such dosage and diluted in the 24-hour specimen is very small (approx. 1-5,000 dilution), and it may have escaped detection, especially as time elapsed during the transport of the specimens to the laboratory. Nyiri, on the other hand, examined specimens taken within a few hours of the thiosulphate ingestion and found unaltered thiosulphate. It is obvious that in further work of this character, examination and analyses of the urine should be made within a few hours of thiosulphate administration, when the changes would be possibly more marked than in the diluted 24-hour specimen.

Summary.

Following the ingestion of sodium thiosulphate (5 grm.), an increase in the absolute amount of neutral sulphur in the urine has been noted, the change being most marked in the cases (9) of dementia præcox examined. It is inferred that this change is further evidence of the failure of the dementia præcox organism to adapt itself to normal oxidation processes, and it is suggested that the site mainly involved in this experiment is the liver.

In conclusion I would express my indebtedness to Dr. Golla for his valuable suggestions and advice, to Dr. Mapother for his supervision of the cases and arrangement of the details of experiment, and to Dr. W. Whitelaw for his assistance with the large number of analyses this work entailed.

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Occasional Notes.

Report of the Board of Control's (England and Wales) Committee on Nursing in County and Borough Mental Hospitals.

THE long-expected report of this Committee has been issued and has had a somewhat mixed reception. Its chief critic has been the National Asylum Workers' Union, mainly in regard to the Committee's recommendations on the remuneration of the nursing staff. The local authorities do not appear either to have received it with much enthusiasm for reasons which to us seem very apparent. They no doubt envisage trouble with their mental nursing staff if they adopt the Committee's recommendations regarding pay, and to carry out many of the other recommendations means more capital expenditure and further calls on the public purse for the care and treatment of the certified insane.

For our part we consider not a few of the views expressed in the report as idealistic rather than immediately practicable, and until we reached that sentence in the Committee's concluding remarks which says "we wish to make a strong appeal to Visiting Committees and to the officers in authority at public mental hospitals to give effect to our recommendations at a very early date," we were under the impression that this was in reality the attitude of the Committee.

Having regard to their further statement that "in order properly to carry out our recommendations they must be adopted generally. In a sense, we contemplate a national nursing service, that is to say, a service in which the same qualifications are recognized and

required at all institutions for the same positions, and in which promotions may be freely obtained from one institution to another," the appeal made to the local authorities seems misplaced, and should have been addressed to the Government of the day.

It is impossible to conceive of local authorities coming to any agreement voluntarily for common action on the highly contentious and difficult matters dealt with in the report. For instance, a reorganization on national lines of the nursing staff of the public mental hospitals could only be effected by some central authority with parliamentary powers to enforce its decrees or through an Act of Parliament. A voluntary agreement among local authorities, even if it could be arrived at, could not be made binding on anybody's part and the issues at stake are far too important to be left in such a precarious state. As a sketch of the lines upon which a national scheme might be made workable the Committee's proposals are not without attractions.

In many other matters the views of the Committee are ideals which can be heartily commended to those in authority in mental hospitals. If not immediately practicable their realization should be aimed at, which we have no doubt in some instances will be reached in due course.

We may say, however, that whatever criticisms occurred to us in reading this report, they did not detract from the feeling we had that the Committee had collected information regarding the nursing conditions in the public mental hospitals of the greatest value. Even when the proposals of the Committee are ignored the report contains a wealth of facts which in themselves entirely justify the wisdom of appointing the Committee.

This point is too often forgotten by critics, and the deductions and conclusions bulk too largely when estimating the value of work done by a Committee of inquiry. These, after all, are matters of opinion. Far more important are the facts ascertained, often, as in this case, after weeks or months of patient labour and prolonged investigation—every effort being made to arrive at the truth so that facts and not fiction are recorded. This Nursing Committee, like its sister Committee on Patients' Dietary, has not spared itself in the public service. Its members have travelled far and wide to gather impressions and see for themselves the actual conditions which obtain in the nursing of the insane. They held twenty-four meetings, and in addition there were sub-committees to attend, to which had been remitted special sections of the work. Many witnesses were examined both at meetings and when on tour, and much information gathered by correspondence and questionnaires addressed to medical superintendents and matrons. An open

invitation was also extended to members of the mental hospital nursing staffs to send suggestions and communications to the Committee. That the Committee had not before them the views of the National Asylum Workers' Union was no fault of the Committee; they were invited to give evidence, but declined for reasons which do not appeal to us but satisfied them. However, having so declined to assist the Committee we think their criticisms might have been put with more restraint, and the value of the report in other respects more generously acknowledged.

With this general introduction we will now review in more detail some of the more salient points in the report.

The report is commendably brief, and represents only a tithe of the work accomplished by the Committee. It is, however, a reasonably comprehensive review of the situation, and all the main factors which bear on the question under consideration are adequately covered.

The scope of the work of the Committee is first described. Some of the guiding principles unanimously agreed upon are as follows:

(a) That, in the treatment of mental disorders, skilled, tactful and kindly nursing is at least as essential as in the nursing of any other form of illness.

(b) That the quality and standard of nursing required demands adequate training, without which it is undesirable that anyone should be placed in charge of a ward for mental diseases.

(c) That to obtain this training, systematic instruction, theoretical as well as practical, by qualified teachers, is essential.

(d) That a good training requires not only adequate arrangements but also a wide field of clinical experience, the realization of which may entail mutual co-operation between hospitals.

(e) That to accomplish the ends in view, it must be recognized by the governing authorities that nothing short of a high standard of training will suffice, even though this training is costly.

(f) That, to prevent wastage either of effort on the part of the teachers or of public expenditure, mental nursing should be regarded as a vocation, and candidates for training should be bound by some form of contract.

(g) That as mentally sick patients, equally with other persons, are liable to bodily diseases—the latter being, indeed, not infrequently the cause of mental illness—nurses in attendance on mental cases must have a knowledge of general nursing, and this knowledge ought to be the foundation of their training in purely mental nursing. Conversely, the general nurse needs, for the highest fulfilment of her duties, some acquaintance with the elements of psychology and some knowledge and experience of mental nursing.

(h) That it is fundamentally important to regard mental nursing not as a separate profession, but as a branch of the nursing profession. For attainment of success, the ideal experience is that of complete training in both general and mental nursing. As for many years to come, and perhaps always, the majority of persons desiring to take up mental nursing will probably seek their initial experience at a mental hospital, facilities at a general hospital for those who desire to complete their training in general as well as mental nursing must be available.

Some facts regarding the county and borough mental hospitals and their nursing staffs are then given. Most of these are familiar to our readers, but we may say that the total number of beds stated to be available at the date of the report (July, 1924) was

108,646. A numerical summary of the number of posts on the nursing staff showed—

NUMBER OF POSTS ON NURSING STAFF.

<i>Male staff.</i>				<i>Female staff.</i>			
Chief male nurses	.	.	97	Matrons	.	.	97
Deputy do.	.	.	93	Assistant do..	.	.	110
Head nurses	.	.	86	Head nurses	.	.	149
Charge do.	.	.	1,085	Charge do.	.	.	1,300
Others	.	.	5,187	Others	.	.	6,700
Night staff	.	.	870	Night staff	.	.	1,175
Total			7,418	Total			9,531

and the proportion of nurses to patients actually on duty during the daytime was 1 to 9 men and 1 to 10 women, and by night 1 to 55 men and 1 to 56 women.

The next section deals with present and future facilities for training, and the following table showing the state of training of the nursing staff is of interest :

	No. on staff.		Rank.	No. with final certificate.		No. passed preliminary examination.		Residue.	
	M.	F.		M.	F.	M.	F.	M.	F.
	901	1,119	Charges.	510	635	61	139	330	345
	695	865	Deputy charges	326	241	145	235	224	389
	3,742	4,421	Day nurses	525	111	925	625	2,292	3,685
	743	1,009	Night nurses	227	168	113	168	403	673
Total	6,081	7,414		1,588	1,155	1,244	1,167	*3,249	*5,092
1923 : Percentage to total				26.12	15.58	20.45	15.74	53.43	68.68
1922 : " " "				22.40	12.95	17.37	11.87		

From these figures the Committee argue that if the percentages of those who have passed one or both examinations are calculated on those who may be expected to have so passed having regard to duration of service, then of those with over five years' service 56 *per cent.* of the male nurses and 70 *per cent.* of the female nurses were certificated in mental nursing, and of those with over one year's service 25 *per cent.* of the male nurses and 22 *per cent.* of the female nurses had passed the preliminary examination. Nevertheless, it is plain that approximately half of the nurses actually employed in these hospitals are untrained, though a majority of them may be

* Of these totals M. 2,266 and F. 3,740 are stated to be undergoing training—though the majority of those already possessing the Preliminary certificate are included.

undergoing training. Fifteen to 20 *per cent.* are only partially trained.

In this connection we cannot help but reflect on what has become of the eighteen thousand male and female nurses who have been awarded the Association's certificate in mental nursing since 1891. Even having regard to those (females) who have married and those pensioned or dead or doing private nursing, there must be a considerable number following other occupations.

But to return to the figures regarding the proportions of trained mental nurses employed in mental hospitals. We note that the Committee do not attempt a comparison between mental and general hospitals in this respect. Are they comparable? We think so, because it will readily be admitted that a trained staff is equally necessary in both types of hospitals. Omitting, however, those general hospitals that are medical schools, we cull the following figures from *Burdett's Hospitals and Charities (1922-3)* relating to the percentage in staff of first-year probationers and pupils. In London the proportion is from 17·78 *per cent.* to 74·32 *per cent.*, the average being about 30 *per cent.*, and in the provinces from 16·39 *per cent.* to 69·23 *per cent.*, the average being about 30 *per cent.* These figures are comparable with 53·43 *per cent.* (males) and 68·68 *per cent.* (females) in the mental hospitals.

It is thus apparent that the mental hospital staffs have far to go before they can compare with the general hospitals in this matter. Much will depend upon a greater fixation of staff and less wastage.

The present facilities for training were found to vary considerably. This variation depended upon the size of the institution, the thoroughness of classification, night nursing, provision for special treatments, lecture and quiet rooms, nurses' homes, etc.

Smaller hospitals, though they may offer sufficient opportunity for purely mental nursing, do not give the necessary scope for acquiring the essentials of general nursing. The classification of patients found to be most practicable was that into recent and recoverable and those of a long-standing character, having regard to the greater proportion of large to small wards. The further classification of these two groups according to behaviour was generally followed. A wide clinical experience was thus open to the nurse if allowed a period of duty in each type of ward.

As regards night nursing, the Committee think that many patients were in need of more individual attention at night time than could be given by the existing proportion of night nurses to patients. In only 44 hospitals did they find an officer on night duty.

Hospitals equipped with verandahs, continuous baths and other methods of hydro-therapy, and X-ray installations, etc., afford greater facilities for the training of nurses. Some 20 hospitals had lecture-rooms, and 20 hospitals had quiet rooms for male nurses and 18 hospitals the same provision for female nurses.

The Committee are glad to record that compulsory training is becoming more general, but no figures on this point are given. Only in a few instances were the staff bound to contract to remain for the period of training, and even in those cases such contracts were not rigorously enforced.

Most of these matters fall to be dealt with again later on.

As to future facilities for training, the Committee recommend a scheme which they admit will need to be adopted generally if it is to be carried out. It involves a grading of mental hospitals as follows :

(A) Hospitals possessing the necessary facilities for the full curriculum in mental nursing (the Preliminary and the Final examinations).

(B) Hospitals possessing the necessary facilities for the Final examination only and—

(C) Hospitals not recognized as training schools.

With respect to grade (B) we recommend that, when it becomes practicable, such hospitals should accept no nurse who has not already passed the Preliminary examination. As to grade (C) the number of hospitals in this class will be very small and the nurses will for the most part have to receive their training elsewhere; some of them will no doubt enter these hospitals before they have received training, and, in such cases, they should be recommended to a recognized school for the purpose of obtaining it.

Subjoined are the principal requirements which we consider should be laid down for grades (A) and (B) :

(A) *Training school for complete curriculum* (Preliminary and Final examinations) :—

- (a) Must satisfy the approving authorities that, by its facilities, it is eligible for approval.
- (b) Must possess a nurses' home or other corresponding accommodation. This should be under the control of a home-sister or other responsible official capable of inculcating the ethics of nursing and teaching hospital etiquette.
- (c) Must have a suitable room or rooms, adequately equipped, for giving lectures and demonstrations.
- (d) Must have at least one sister-tutor.
- (e) Must have ward sisters, preferably doubly-trained (*i.e.*, in general as well as mental nursing), able to give, and sign-up probationers as having received, practical ward instruction.
- (f) Should have not less than an average of 30 student nurses always in training.

(B) *Training school for partial curriculum* (Final examination only) :—

- (a) Must satisfy the approving authorities that, by its facilities, it is eligible for approval. No hospital should be approved unless clinical opportunity is provided of seeing all stages of the various forms of mental disorder.
- (b) Must have a suitable room for giving lectures and demonstrations, and the necessary equipment for teaching.
- (c) Must have a sister-tutor or doubly-trained matron or assistant matron capable, and available as to time, of acting as sister-tutor and of signing-up probationers for their practical ward instruction.

Under the heading of "Reciprocity" we glean something of how the Committee propose the scheme should be administered :

(i) It is essential for success that provision should be made for the affiliation where necessary of two or more mental hospitals for their mutual advantage, in order, firstly to provide adequate facilities and material for a full training school (grade A), and secondly, to secure the training and promotion of the staff in hospitals in those groups only partially or not at all recognized as schools (grades B and C).

Every hospital recognized as a training school for the complete curriculum (grade A) could by arrangement have affiliated to it one or more hospitals in grades (B) and (C). Affiliation will be most easily secured between hospitals situated in one county, but in some cases co-operation between two or more counties may be necessary.

In the ordinary course, grade (B) hospitals would take from the training school senior probationers to complete their training for the certificate, and grade (C) hospitals would take staff nurses ; and both (B) and (C) hospitals would be entitled to consideration in the placing of senior probationers and staff nurses trained in the school, but they would also have the power to engage staff from any source.

In the early development of this scheme, hospitals in grade (B), and especially in grade (C), will doubtless be placed in some difficulty in regard to junior staff. In all probability both grades of hospitals would require to have recourse, for a time at any rate, to the employment of untrained attendants to fill junior posts, and although not recognized as training places for the Preliminary examination these hospitals would nevertheless probably hold classes for the St. John's Ambulance and First-Aid Nursing Certificates, and they would have the right of nominating for consideration any suitable and sufficiently educated attendants for training as probationers at the school.

Where does reciprocity enter into this arrangement? What possible advantages or benefits accrue to grade A hospitals? We always thought that reciprocity meant benefits to be mutually enjoyed. Grade A hospitals are allotted more work and put to additional expenses. They need to build additional staff accommodation and employ training staff extra to their own requirements. They have all the trouble of engaging and training staff for grade B and C hospitals. What service do grade B and C hospitals render in return? Apparently nothing. Then where is the reciprocity?

For economic reasons many local authorities will prefer their hospitals to be classified as grade B, and very naturally so, for thereby they will have nothing to lose but much to gain, but an adequate number of grade A hospitals is an essential feature of the scheme. Neither is there any power to compel local authorities to do otherwise.

Let us retrace our steps a little. We have spoken of extra staff accommodation being needed in grade A hospitals. It is difficult to think that the Committee seriously contemplate grade A hospitals staffing B and C hospitals from probationers and staff nurses who are on their permanent establishment, *i.e.*, from the recognized ratio of nurses to patients. Imagine the constant changes and fluctuations in nursing *personnel* that would occur in grade A hospitals if this were attempted ; and would senior

probationer nurses and staff nurses submit to being transferred elsewhere? It is not uncommon for nurses to resign if moved from one ward to another in the same hospital, let alone to another hospital. Under such conditions not only would grade A hospitals undertake a lot of extra work and responsibility, but the administration of them would be inconvenienced as well. The only feasible arrangement would appear to be for the nurses under training for grade B and C hospitals to be extra to the establishment of grade A hospitals. Additional nurses' accommodation would then be called for in grade A hospitals.

There would also be financial considerations difficult to adjust. Grade B and C hospitals would need to maintain the nurses in training for them in grade A hospitals, and at the same time pay for temporary nurses or attendants who were for the time being filling their posts. Mention is made later in the report of the necessity for a Government grant-in-aid of the expenses of training schools to be administered by the Board of Control. Is it thought for one moment that such a grant would be sufficient to cover a substantial proportion of this extra expenditure?

We note also that the Committee apparently do not attach importance to a mental nurse passing her three years of training in one institution.

We are not condemning the scheme except in so far as it is expected to flourish on mutual understanding and by voluntary inter-hospital arrangements. From this point of view we think the scheme hopeless of achievement. To carry it out would undoubtedly involve the creation of a national service of mental nurses to be trained and posted (as it were, loaned) to hospitals by some central authority and paid for by the local authorities. The Government would perhaps need to support the nurses during some period of their training.

Here we must leave the matter, for the creation of a national mental nursing service is too big a subject to be discussed now.

The Committee suggest that one of the criteria for recognition as a training school should be a minimum number of student probationers of 30, *i.e.*, 10 first year, 10 second year, and 10 third year or thereabouts. This would of course exclude excellent training schools like the Maudsley and many of the clinics it is hoped to establish in the future.

Reciprocity is the feature of the suggested organized co-operation between mental and general hospitals. We have advocated affiliation between these types of hospitals on more than one occasion, and for far more reaching reasons than the interchanging or seconding of nurses for education.⁽¹⁾ At least two local authorities before

the Committee was appointed had already taken very definite steps in this direction, and it is hoped that in due course every county and borough mental hospital will be linked up for mutual assistance with some general hospital or large infirmary.

We think the Committee is unduly optimistic on the question of seconding mental nurses for general training. It is not every nurse who asks for general training whose return to the mental work is either desired or desirable, and furthermore, such nurses after experience of general nursing may not wish to return. An effective contract between the mental hospital and the nurse seconded would seem to be impracticable, and on the whole we cannot see much future for this method of securing the general hospital training of mental nurses. A system of interchange of nurses for this purpose between affiliated mental and general hospitals, like that being tried at Oxford, would seem to have more chance of success. Nevertheless, we are strongly in favour of doubly trained staff being employed in mental hospitals, but a more practical method of securing this must be sought than that recommended by the Committee.

The Committee gave much consideration to the establishment and its grades. There is little in the Committee's views that call for criticism. The elimination of the female head nurse and the raising of the status of the charge nurse is one of their recommendations. The latter follows naturally on the hospitalization of the asylum, but we think that the former step will call for an increase in the number of assistant matrons. The appointment of home sisters for the same reason becomes a necessity. We are glad to see the omission of the name "inspector" from the nomenclature of the male staff. We wish the Committee had been still more courageous and recommended the abolition of the name "attendant." It has an unsavoury reputation among a large section of the public and is totally out of place in a hospital. The Committee recommend its retention for uncertificated staff in charge of patients. Why not "hospital orderly" or "hospital assistant." Either of the latter names would attract a wider class of applicant. Good use could be made of their services in industrial wards, and for supervising and working with patients on the farm or when engaged in the general domestic work of the hospital. We cannot agree that any ward in the near future should be in charge of an uncertificated nurse, and the present uncertificated charge nurses, as they surrender their posts, should be replaced by trained nurses.

The Committee's views on the qualifications of the Matron, her scope of control and authority will find general acceptance. The paragraph dealing similarly with sister tutors is as follows :

This officer should be doubly-trained and appointed on account of her qualifications for training. Her duties should be mainly, if not wholly, those of teaching. There are instances where a sister-tutor might be—and, indeed, has been—shared between a mental and local general hospital, and we think that wherever possible a *liaison* between the medical and nursing staffs of general and mental hospitals is desirable. Many mental hospitals now have a visiting medical staff drawn from the local general hospital, and a few general hospitals have a department for diseases of the nervous system in charge of the physician of the mental hospital. Similarly, opportunities for co-operation in the training of the nursing staff might be developed with advantage to both parties.

It is satisfactory to know that more and more mental hospitals are appointing sister-tutors. Some hospitals (London County mental hospitals) prefer to grade them as assistant matrons for administrative reasons.

As to the advisability of the employment of doubly trained nurses in mental hospitals we are all with the Committee. We think, however, that no general hospital-trained nurse should be taken on the staff of a mental hospital except on the clear understanding that she will train for and obtain a recognized certificate in mental nursing, and this to include matrons, assistant matrons and sister-tutors.

As regards initial tuition free from ward duty, which has been much discussed of late, the Committee report that :

Although there are difficulties in the way of establishing a system of initial tuition before ward duty is undertaken, we strongly recommend that it should be done ; the sudden introduction of a novice into the often difficult atmosphere of a mental ward should be avoided. We think that every probationer, on joining, should be placed under special guidance and instruction during such period of time as may be found necessary, in order to ensure that no one should be given ward duties without receiving an elementary grounding in the duties and responsibilities of nursing, and the best methods of tactfully dealing with different forms of mental disease.

We are convinced of the moral value of such a system in regard both to the probationers, whose entire outlook may thereby be advantageously influenced, and for the prestige of the training school.

This preliminary instruction should include—

- (i) Teaching in the objects and etiquette of nursing.
- (ii) Introduction to the hospital and its various departments.
- (iii) A short practical introduction to the various types of wards and patients, and the special responsibilities inherent in the work.
- (iv) Practical instruction of ward routine and the use of common nursing appliances.

Finally, every probationer should undergo a test as to fitness to be assigned ward duty.

Akin to this is the Committee's proposal regarding the establishment of training schools :

(B) *Training schools*.—One of our chief constructive proposals is the setting up of training schools, an essential part of which is a house for nurses as fully equipped for this purpose as possible. It should be a separate, self-contained building within the hospital grounds, having its own garden. It should be so placed as to have a separate entrance from a public road, thus permitting nurses to receive their friends without the necessity of introducing them into the hospital. It should be equipped with rooms suitable for the corporate life of the students and for receiving and entertaining their friends ; and, unless elsewhere provided in the hospital, with class rooms and the apparatus necessary for teaching.

The carrying out of these, like many others of the Committee's recommendations, is purely a matter of cost. It is regrettable that for this reason such recommendations, however desirable, must be considered as idealistic rather than practical, especially having regard to the existence of strained economic conditions generally. This, however, is no fault of the Committee's. It was their business to find out what would operate to the good of mental nursing, and quite rightly they have not allowed economic considerations to obscure their vision or unduly influence their conclusions and recommendations.

The Committee do not make out a good case for the necessity of a member of the nursing staff holding the C.M.B. certificate. Births are comparatively rare in mental hospitals, and failing a nurse on the staff being experienced in midwifery such services could be readily carried out by a local certificated midwife for the usual fee.

The employment of trained masseuses in mental hospital is urged to meet modern requirements in treatment.

The terms of reference of the Committee included the consideration of the suggestion of the Departmental Committee of 1921 as to the making of some distinction between the two nursing duties, namely, nursing proper and social duties. We are glad to note the Committee confirm the general view that such is impossible.

The Committee comment at some length on night nursing and night observation. We consider reform in this direction and the provision of nurses' homes to be by far the most important and urgent matters which arise from the Committee's terms of reference.

As regards the former we would have been better pleased had the Committee gone further and recommended the total abolition of the practice of nurses sleeping close to the wards. Some of us remember the days when night nursing scarcely existed and the nurses actually slept in the dormitories with the patients. The next step was to give the nurse a room in the ward or dormitory so that she was available to assist the night staff in emergencies. Nurses not so required slept in nurses' blocks.

The final step should now be taken and nurses removed from the hospital entirely when not on duty by day or night, and housed in suitably designed and equipped nurses' homes. This means that there must be an adequate number of nurses doing duty by night, *i.e.*, for the care and treatment of the patients and the security of the building.

Like the Committee, we do not wish to disparage the excellent work done by the present night staffs, but nevertheless, though by day asylums have become hospitals, they remain asylums or prisons

by night. In other words, by day treatment is the main concern and by night the custodial spirit reigns supreme.

To secure the necessary continuance of treatment and observation by night it is not necessary for a ward to continue to be the nursing unit. Groups of wards could become units under sisters or charge nurses assisted by an adequate number of staff nurses, with whom would be associated probationers receiving instruction in night nursing. The responsible officer should be an assistant matron or night superintendent nurse.

The Committee's recommendation we regret falls short of this :

We recommend that the proportion of night staff to patients, notably in acute and admission wards, should be increased ; that the occupation by nurses of bedrooms off dormitories should be done away with where the rooms are near noisy wards ; that nurses should receive special instruction in night-nursing ; that none below the rank of senior probationer should undertake it ; and that, in each hospital, there should be a member of the nursing staff of at least the rank of sister or charge male nurse in charge of the respective sides. Where practicable, it would be of advantage were the supervision of both sides entrusted to one night sister or assistant matron—either of whom would, of course, be doubly-trained.

As regards nurses' homes the Committee say :

(vi) *Nurses' homes*.—This provision varies greatly and cannot be set out in the space at our disposal. Owing to the facts that, as regards male nurses, restriction on the number who may be married has been practically abolished and that married men may live out, the question of the provision of these homes, which in our opinion is of great importance, arises almost entirely on the female side. The semi-collegiate and corporate life which is possible in a nurses' home should form a prominent part of a probationers' training. The opportunities it provides for promoting *esprit de corps* and the acquiring of nursing etiquette, for mutual discussion, the making of friends, and social enjoyment, are of the highest value in the formation of character. We take no exception to a proportion of the female nursing staff living out,⁽²⁾ but we see grave objection to this being permitted during the period of training.

Later they say :

(A) *Housing of staff*.—(1) Men : As in most hospitals a large proportion of male nurses are married, housing for the family has to be found. Where local conditions permit, this should be sought outside but near the institution, in a neighbouring town or village, so that the family may have an opportunity of developing its social life untrammelled by the routine and regulations of the hospital. Where in country districts this is impracticable, cottages must be provided, preferably outside the curtilage of the hospital, but within easy walking distance. As a precaution in case of fire, it is necessary for a certain number of men to sleep in the hospital or in a block attached to it. (2) Women : It will probably remain the custom that most women nurses will live within the hospital boundaries. Wherever practicable they should be housed in a separate nurses' home, having its own domestic offices, gardens, etc. Hospitals, however, vary so widely in size and structure that it is impossible to do more than lay down a few general principles :—

- (a) Every nurse should have a bedroom to herself.
- (b) As many bedrooms as practicable should be quite apart from the wards.
- (c) Night nurses' bedrooms should be quiet in the daytime.
- (d) Sufficient bathrooms should be available.
- (e) Dining and recreation rooms and, except in the smallest hospitals, a "silence" room for reading and writing should be provided. Sisters and charge male nurses should have their dining and sitting rooms apart from the other nurses.
- (f) A nurses' infirmary is an advantage.

Now these two questions of night nursing and staff accommodation are closely intertwined. We feel certain that their satisfactory solution will do more than anything else to stabilize the nursing staff. They lie at the root of the hospitalization of asylums, for unless mental nursing is made more attractive and the material conditions under which mental hospital nurses live and do their work are without reproach, it is waste of time to talk about training. Nothing the Committee have recommended will appeal more to the public than their proposals in these respects, and in no other direction are the Committee more likely to be successful in persuading local authorities to embark on further expenditure.

We endorse all the Committee's recommendations in regard to accommodation except A(a) and A(f). The former we have dealt with; as regards the latter, we should have thought a staff infirmary had long been regarded as a necessity.

Owing to want of space we need to be selective as regards the points in the report we touch upon and already this note has become unduly long, but at the risk of being thought unduly prolix, some comments on other matters are called for.

We are glad to see that the Committee recognize the importance of the social life of the nursing staff apart from the atmosphere of the hospital. Failing officers capable of or having the time to encourage outdoor sports and indoor relaxations, we think money would be well spent in employing part-time sports' mistresses and sports' masters for this purpose. They are more likely to succeed than the officers, because it is difficult for the latter to dissociate themselves from their disciplinary duties.

The Committee twice speak of binding contracts in two connections: (1) As regards nurses remaining for the full period of training, and (2) the undertaking of nurses seconded for general training on its completion returning to the mental hospital.

It is beyond the capacity of the proverbial Philadelphian lawyer to construct a binding contract without a penalty being attached for its non-performance. It seems useless to think of a money penalty, but what other penalty would be effective? Furthermore the penalty would be exactable by either party to the contract (if it were a just and legal contract), and (1) in those cases where a probationer proved unsuitable through no fault of her own, if the hospital dispensed with her services it would need to pay the penalty, and (2) if there were no suitable vacancy and not likely to be one on a nurse completing her general training, the hospital would need to maintain her or pay the penalty and dispense with her services.

Some effort, however, is desirable in the direction of preventing nurses flitting about from one hospital to another for no tangible

reason. Hospitals should generally agree not to take as probationers nurses who had left another hospital during the period of training for trivial or insufficient cause.

We do not propose to adjudicate on the Committee's recommendation regarding remuneration. Such is hardly a matter, in these days, for the doctor's decision, but common sense would tell us that to think of reducing the present rate of pay of a probationer nurse, unless such reduction is part of a reduction of workers' wages generally, is folly. The readjustment of the pay attached to higher grades is another matter, and depends upon the ability displayed and the responsibility undertaken. The commencing rate is presumably a living wage.

The hours of duty of a nurse do interest the doctor, because they may affect the efficiency of the care and treatment of the patient. The Committee have much to say about this matter, which we cannot reproduce here. It is a subject beset with difficulties and complexities. The chief question, really the basic question, is the desirability or otherwise of a universal 48 hours a week for mental hospital nurses. Let us be candid and face facts.

The Committee speak of nursing being a vocation and not a trade. In the year of grace 1925 are there any vocations left other than religious vocations? Is there any substantial difference between a profession and a trade? In a practical sense are not vocations and professions passing and becoming merely occupations, *i.e.*, means of earning the daily bread. Are not plumbers now sanitary engineers; butchers, meat purveyors; watch makers, horologists; policemen, guardians of the law; farm hands, agriculturists? Do not modern universities give degrees and diplomas in industries and business methods?

It is a great thing to combine idealism with occupations and wage-earning, but should any public body demand of any employee more than it pays for or more hours of labour than is consistent with the employee's good physical and mental health? These surely are the criteria by which matters of pay and hours of duty should be judged. Let there be idealism and devotion to duty by all means, but let it be a free offering. It is then a power for good because it is sincere and heart-felt. Has not the time come to recognize that a day's work is an honourable thing, whether it takes place in a coal mine, workshop, or behind the counter or on the land, or by the bedside of a sick person, or on the bench administering the Law? If it is the best we can do, whoever we are, is it not acceptable like the widow's mite?

Having regard to these considerations is the claim of the nursing staff to work only 48 hours a week unreasonable? On the other

hand, can we assure local authorities that by granting it the care and treatment of the patients will not suffer thereby?

While not expressing an opinion on either of these points we do say that the Committee have put their views with moderation and restraint, and that their recommendations form an excellent basis for discussion and deserve very serious consideration, and as regards one aspect of the question, we will say that in a mental hospital there does seem a case for different daily hours being worked so long as the aggregate weekly or fortnightly hours are the same. The difficulty is to produce a practical scheme on these lines.

Another point the Committee deal with is the nursing of male patients by women nurses. We have read a good deal on this subject and are not without personal experience of it. We think that some of its advocates and some of its opponents are not guiltless of exaggeration. The truth appears to be that while good sick-nurses are common among women, they are not so common, but by no means rare, among men. It seems natural and proper that well-behaved men, though insane, should have the advantage of women nurses. There would still be plenty of sick nursing for men to do—in fact as much, if not more, than the ordinary supply of good sick male nurses can cope with. As far as mental nursing is concerned, our experience is that apart from infirm cases (seniles, neurasthenics, etc.) the male insane do better when nursed by men. The Committee take the mid-way view that “the adoption of doubly trained sisters and of women staff nurses in male sick wards and in possibly other types of male wards, will ultimately prove beneficial alike to the nursing of male patients and to the training of male probationers.”

In conclusion we feel bound to remark that the report is a valuable document, worthy of the earnest consideration of the Ministry and the Board of Control and all in authority over county and borough mental hospitals. It is born of high ideals, broad views and careful inquiry, and should prove an instrument for good in the further evolution of the nursing of the mentally afflicted. This we sincerely hope.

(¹) See “Occasional Note,” January, 1924.—(²) At two of the hospitals the whole of the female nursing staff sleep and find their own meals outside the institution. At some thirty of the others a proportion, generally small, sleep out; taking these thirty hospitals together, there are about 5 *per cent.* of the day staff who thus sleep out.

In these days of change, when the old order is being replaced by the new, we are reminded of the following verses :

STAFF NURSE : OLD STYLE.

The greater masters of the commonplace,
 Rembrandt and good Sir Walter—only these
 Could paint her all to you ; experienced ease
 And antique liveliness and ponderous grace ;
 The sweet old roses of her sunken face ;
 The depth and malice of her sly gray eyes ;
 The broad Scots tongue that flatters, scolds, defies ;
 The thick Scots wit that fells you like a mace.
 These thirty years has she been nursing here,
 Some of them under Syme, her hero still.
 Much is she worth, and even more is made of her.
 Patients and students hold her very dear.
 The doctors love her, tease her, use her skill.
 They say " The Chief " himself is half-afraid of her.

STAFF NURSE : NEW STYLE.

Blue-eyed and bright of face but waning fast
 Into the sere of virginal decay,
 I view her as she enters, day by day,
 As a sweet sunset almost overpast.
 Kindly and calm, patrician to the last,
 Superbly falls her gown of sober gray,
 And on her chignon's elegant array
 The plainest cap is somehow touched with caste.
 She talks Beethoven ; frowns disapprobation
 At Balzac's name, sighs it at " poor George Sands " ;
 Knows that she has exceeding pretty hands ;
 Speaks Latin with a right accentuation ;
 And gives at need (as one who understands)
 Draught, counsel, diagnosis, exhortation.

LADY-PROBATIONER.

Some three, or five, or seven and thirty years ;
 A Roman nose ; a dimpling double-chin ;
 Dark eyes and shy that, ignorant of sin,
 Are yet acquainted, it would seem, with tears ;
 A comely shape ; a slim, high-coloured hand,
 Graced, rather oddly, with a signet ring ;
 A bashful air, becoming everything,
 A well-bred silence always at command.
 Her plain print gown, prim cap, and bright steel chain
 Look out of place on her, and I remain
 Absorbed in her, as in a pleasant mystery.
 Quick, skilful, quiet, soft in speech and touch . . .
 " Do you like nursing ? " " Yes, Sir, very much."
 Somehow, I rather think she has a history.

Those of us who have been hospital patients will appreciate the following :

" THE CHIEF."

His brow spreads large and placid, and his eye
 Is deep and bright, with steady looks that still.
 Soft lines of tranquil thought his face fulfil
 His face at once benign and proud and shy.
 If envy scout, if ignorance deny,
 His faultless patience, his unyielding will,
 Beautiful gentleness, and splendid skill,
 Innumerable gratitudes reply.

His wise, rare smile is sweet with certainties,
And seems in all his patients to compel
Such love and faith as failure cannot quell.
We hold him for another Herakles
Battling with custom, prejudice, disease,
As once the son of Zeus with Death and Hell.

[Taken from *A Book of Verses* by William Ernest Henley, published by David Nutt in the Strand, 1897.]

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Report of the Board of Control's (England and Wales) Committee on Clinical and other Records kept in Institutions for the Insane.

THE task set this Committee was a light one in comparison with those of its sister Committees on Dietaries and on Nursing in County and Borough Mental Hospitals. Nevertheless they had to deal with a matter of some importance to the better medical administration of the mental institutions and to the care and supervision of cases in single care.

The Committee's aim was twofold: (1) better records; (2) revision where necessary of the statutory rules of the Commissioners under the Lunacy Acts 1890-1911.

The Committee, though fully capable of carrying out the terms of reference, was scarcely representative enough to undertake a greater task, long overdue, *i.e.*, the revision of the medico-psychological statistical forms used by the Board, especially those regarding the incidence, causation, and ætiology of insanity, and this matter was not referred to them. We should have liked, however, the Board to move in this matter, and this would seem to have been a favourable opportunity. A joint Committee composed of officials of the Boards of Control and nominated members of the Medico-Psychological Association would prove a very practical instrument for the revision of the Medico-Psychological Statistical Tables. Those tables dealing with causation and classification of insanity and their co-relation are hopelessly out of date in the light of recent advances in psychological medicine, and this is not the first time the Journal has called attention to the fact.

To return to the report under review, the outcome of the Committee's labours is the issue of Statutory Rules and Orders, 1925, Nos. 75 and 76, dated January 7, 1925, which came into operation on April 1.

We have few, if any, criticisms to make regarding the work of the Committee, which has been admirably carried out. Our view has always been that the basis of all medico-administrative records in mental institutions should be the records made and retained in

the wards, *i.e.*, the ward day and night reports and the clinical records of the patients. The keeping of these above all should be statutory and the minimum entries fixed. With a few exceptions, all the other records it is necessary to keep for administrative reasons, including those for statistical returns, for example, the matron's and head nurses' reports, seclusion and casualty registers, administrative, etc., should be mere abstracts from the fundamental records kept in the ward. They need not of necessity be statutory records, though it is desirable some of them should be, to secure the collection of uniform data throughout the mental institutions. Such secondary and extracted records should be as few as possible to avoid clerical labour and re-duplication of work. The legal and personal documents should form a dossier for each patient and kept centrally in a fireproof chamber.

The Committee on the whole have taken this view, and though they have included in their list of obligatory records many which at first sight we would think need not have been so classified, yet we fancy they have done this, in some cases at least, not with a view to there being uniformity of entries, but to make sure that such records are actually kept in the future.

It seems hardly necessary for us to give a digest of the report. The new rules will already be familiar to most of our readers. None will mourn the death of the medical journal and what was called the "parish returns." With them go *nil*-restraint returns and escape and re-capture notices. The survival of the former was an anachronism, while the latter served to make these occurrences appear of an importance they did not merit.

As to the case-books, no doubt in small institutions they, too, will disappear, but probably in large mental hospitals it will be found necessary to keep some sort of central medico-administrative record of patients, composed of extracts from both legal and clinical records.

Seclusions are to be recorded in a combined register of restraint and seclusion. Occasions where restraint is resorted to must be very rare, and should not need the equal space with seclusions allotted them in the form (8) prescribed. In fact we think the restraint register could very well have been abolished, and each such occasion ordered to be reported to the Board, giving statutory details. Copies could be filed for the information of the visiting Commissioners.

The keeping of the following books or forms becomes obligatory, and in most instances the minimum details to be recorded are stated: A register (alphabetical) of patients, a clinical record, caution cards (for suicidal, tubercular and intestinal infection cases),

a dispensary book or medicine card, day and night ward reports, diet records, and a notice of the condition of a pauper patient on admission to the person bringing him (or her).

A new definition of seclusion is framed, which admirably fits the case, and the Committee express the view that in certain cases seclusion is a valuable form of treatment, and its use, when advisable, should not be hampered. We are glad to record this, for it is a point about which patients' friends are most irrational. Some clamour for the patient to be kept in a private room by himself; others are full of complaints when they find the doctor has secluded the patient, alleging "cell" or "dungeon" treatment. Seclusion, however, should never take the place of the nurses' care if the latter is more likely to attain the desired result.

Rule 25 has been amended and becomes Rule 32, and it is now clear that only those members of the staff who have been guilty of misconduct in connection with a patient shall, on dismissal, etc., be notified to the Board. The rule could previously read as applying to those employed in connection with the care of patients—a needlessly wide application.

It is noticeable that while the medical officer in the case of an admission of the pauper class has to declare on the notice of admission the presence of any marks, bruises or injuries or the absence of them, such a declaration is not obligatory when notifying the admission of a private patient.

It seems curious in these days that no permission is given for the keeping of suitable records by the card index system. Perhaps, on application to the Board, no objection will be raised so long as the statutory headings are used. This applies especially to alphabetical registers of patients in large hospitals.

The new rules are in several respects an improvement on their predecessors. Statutory requirements have been relaxed or abolished where possible to diminish unprofitable work, ambiguities removed in others, and there are some additions, all of a judicious character.

As regards No. 76, which deals with the modes of mechanical restraint, but little change has been made. The chief alteration is that treatment by continuous bathing and wet and dry packs is not now to be considered as mechanical restraint if used as the Order states. Their use, however, in all cases is to be recorded in the clinical records.

We cannot doubt but that those in authority in mental hospitals and others affected by the new statutory rules and orders will be grateful to the Committee for their labours, and we are glad to note that the Board of Control, with practically no exceptions, have adopted and acted on the recommendations of the Committee.

Part II.—Reviews.

Common Symptoms of the Unsound Mind. By G. RUTHERFORD JEFFREY, M.D., F.R.C.P., F.R.S.Edin. With a Foreword by Sir JAMES CRICHTON-BROWNE. London: H. K. Lewis & Co., Ltd., 1923. Crown 8vo. Pp. xviii + 268. Price 7s. 6d.

It is not without reason that psychiatrists deplore the lack of co-ordination in the means available for the diagnosis and treatment of mental disorder in its initial stages. The complaint refers as much to personnel as to mere machinery. The family doctor, intimate with the family history and called upon to act as counsellor in every crisis of its fate, occupies a position of privilege from which the practising psychiatrist is debarred by many considerations. One can understand the reluctance relatives must always feel to make a tacit admission of mental disorder in the family by engaging the services of a psychiatrist. But it follows therefrom that the public are not making the best use of the resources at their disposal. The family physician, on the other hand, with his multifarious interests, finds it difficult, if not altogether impossible, to follow the ramifications of every subject to its latest development. It is to be feared, moreover, that psychiatry makes even less appeal to him than its intrinsic interest would warrant. For one thing, when a case becomes difficult it usually passes beyond the family doctor's care, and his immediate responsibility comes to an end. Further, who can tell how many practitioners have been dissuaded from the study of psychiatry by the weird jargon in which its latest achievements are apt to be chronicled?

These mal-adjustments, it must be confessed, seem to some extent inherent in our existing social order. Meantime, if they cannot be completely surmounted, surely something can be done to minimize their unfortunate effects. Of theorizing there has been more than enough, and all the theorising has left a gap as wide as ever. What the practitioner wants most of all is a re-statement in the simplest possible terms, and from a clinical standpoint, of what Scottish theologians of a past age referred to as "the fundamentals." It is as a problem in clinical medicine that the practitioner must approach every case of mental disorder occurring in his practice, and he might well complain that those presumably qualified to aid in the solution of such a problem have, of late years, been unduly silent. It is on account of such considerations that one welcomes Dr. Jeffrey's book, for it aims at supplying this long-felt want. There is nothing affected or pretentious within its covers, but no fair-minded critic could say that it fails to achieve its object. Dr. Jeffrey deals with such important topics as delusion, hallucination, disorientation, etc., offering in some cases alternative explanations as to how these symptoms arise. To that extent the book is theoretical, but it only contains sufficient theory to make it a coherent treatise, and to stimulate interest in the whole subject.

In the main he is concerned with working definitions, interpreting their practical significance from the point of view of treatment and of prognosis. The book is not intended to be even a synopsis of insanity, but rather an approach to the general question of mental unsoundness as a practical problem from the standpoint of the individual symptom. As such, it affords Dr. Jeffrey ample opportunity of displaying his sound common sense and his undoubted gifts as a clinician. One can confidently predict for the book a wide circulation; it ought to be part of the stock-in-trade of every practitioner.

The value of the book is enhanced by a characteristic introduction by Sir James Crichton-Browne. The introduction adds charm and distinction to a volume which, in itself, is not lacking in these qualities.

GEORGE M. ROBERTSON.

Clinical Studies in Epilepsy. By DONALD FRASER, M.D., F.R.F.P.S.
Glasg. Edinburgh: E. & S. Livingstone, 1924. Crown 8vo.
Pp. 200. Price 7s. 6d. Postage 5d.

Epilepsy is one of the oldest known of human afflictions, and since the dawn of history has been the subject first of superstition, then of hypothesis, and finally of scientific investigation. Notwithstanding the latter we remain at the stage of hypothesis, for the nature of the morbid processes underlying epilepsy is yet largely a mystery.

One factor responsible for the failure to solve this problem is that of diagnosis, *i.e.*, the difficulty of deciding what range of cases presenting convulsions as a clinical symptom should be diagnosed as suffering from epilepsy. Another difficulty is that no definition of epilepsy ever yet advanced can be considered satisfactory from a clinical point of view. A further complication is that epilepsy so frequently occurs in combination with other morbid states, such as dementia præcox, imbecility, senility, organic brain diseases and chronic toxæmias, and it is often difficult to say which predominates. To exclude these cases would mean the narrowing down of epilepsy to the so-called idiopathic epilepsy. Again, fairly frequent epileptic attacks make little or no difference to the general health in some cases, but others so afflicted rapidly degenerate into dementia, though many of the latter are no doubt really suffering from dementia præcox.

Epilepsy has also invaded the sphere of psychological medicine, and largely by implication certain morbid mental states have been designated as mental epilepsy, fulminating psychoses, larvated epilepsy, etc.

It is obvious that Dr. Fraser has felt all these difficulties in writing his extremely interesting clinical studies. Primarily his object has been to illuminate the difficult problem of the pathogenesis of idiopathic epilepsy. He views epilepsy from a much narrower point of view than that ordinarily conceived nowadays, and attaches great importance to the teaching of Brown-Séquard and his pupil and assistant, Hughlings Jackson.

He puts a very pertinent question: Is an epileptic an epileptic before he commences to suffer from epilepsy? He assumes that he is not, and maintains that there is no psychology of epilepsy, only the psychology of post-epileptic conditions, *i.e.*, the psychical effects of the disturbances and positive damage done to the brain. Epilepsy is therefore not a psychological disorder. He does not agree that there is a psychogenesis of epilepsy, and states that such is incompatible with Hughlings Jackson's definitions and teachings.

To Dr. Fraser epilepsy is a chronic disorder affecting nervous structures, which tends to deteriorate them, and is the result of some material, but not psychic, cause. Mental or emotional conditions may influence or set a-going this material cause. He even declines to consider the effect of heredity in the make-up of epileptics. He adheres to the hypothesis that vaso-constriction is the initial movement in epilepsy; other factors, however, may be admitted, such as a toxin, the effects of the cerebro-spinal reflex and the influence of some of the glandular secretions. Chapters are devoted to each of these factors, also to traumatisms and tumours, tuberculosis and syphilis, all in relation to epilepsy, and a final chapter deals with special conditions affecting the initiation and development of the epileptic movement.

With Hughlings Jackson, Dr. Fraser recognizes the association of tumours, softenings, toxæmias, traumatisms, etc., with epilepsy, and also that all these epilepsies, together with migraine and certain vertiginous attacks, are, having regard to Hughlings Jackson's definition, scientifically one.

The important place given to vascular changes in the pia mater in the pathogenesis of epilepsy he thinks greatly simplifies many of its obscure problems otherwise insolvable without this key. With some reluctance he grants that this hypothesis may be extended to some forms of the psychoses and psychoneuroses, but only when they begin, as in epilepsy, suddenly and unexpectedly. He thus, to some extent, admits a link between epilepsy and the psychoses and psychoneuroses other than post-epileptic states.

One great feature of his work is the wealth of carefully-recorded cases it contains, often with *post-mortem* findings. Indeed Dr. Fraser was inspired to write his book by finding amongst his papers a report by Hughlings Jackson on a case of epilepsy he had sent to him about thirty years ago. This patient—Mr. X—, being of a literary turn of mind, had during the greater part of his life kept notes about himself, and in 1921 Dr. Fraser asked him to bring his story up to the end of 1923. Mr. X—'s experiences and opinions are frequently referred to, and an interesting and absorbing biography it is too, well worthy of the closest study by those interested in epilepsy and allied disorders.

We would have liked to comment more fully on the views expressed by Dr. Fraser, and though we feel we cannot agree with him on many points, we are bound to admit that the reading of these studies has given us much food for reflection, and made available to us clinical observations of the greatest value.

Epilepsy is a subject of particular interest to the few rather than

to the many, though its ætiology, pathology and morbid anatomy have by no means been neglected. Its literature is immense, but much of it is diffuse and speculative, and deep scientific investigation of the many problems it presents, like that carried out by Dr. Fraser, has been limited when compared with that undertaken regarding other nervous and mental disorders. In recent years the treatment of epilepsy has proved attractive to junior medical officers, who, following the dogmas of the medical schools, feel they can successfully encounter the occurrence of fits by the exhibition of bromides. This foreshadows other drug treatment. Optimism in this matter is, as a rule, followed by pessimism, and the epileptic is once more free to indulge in his fits without opposition, which would seem to be his birthright. Sooner or later it dawns on the medical officer that the fit is a symbol of a morbid nervous and mental organization rather than the evidence of a positive disease, and he begins to treat the epileptic and not his fits, and finds that by tactful management and a strict attention to the patient's general health he achieves the results he failed to bring about by drugs. Thus the scientific investigation of epilepsy obtains few recruits, and languishes for want of earnest workers.

For these reasons, in addition to its intrinsic value, we welcome this volume of *Clinical Studies in Epilepsy* and heartily commend it to our readers.

J. R. LORD.

Signs of Sanity. By STEWART PATON, M.D. New York: Charles Scribner's Sons, 1922. Demy 8vo. Pp. 240. Price \$2.0.

In recent years there has been a flood of popular literature dealing with various aspects of the mind and its relation to conduct. The different schools of thought have, with varying success, offered their contributions towards solving the problems of life, and have suggested certain principles of right living by which the individual may be guided to use his capabilities to the best advantage and so avoid the evil consequences of mal-adjustment.

The present book belongs to the category of guide-books to the mind. The principles of inheritance, the development of the brain, its different functions and the interrelation of the nervous and the endocrine systems are all described in simple language well suited to the lay mind. In passing one may ask if the tendency towards the elaboration of technical terms is not productive of much confusion of thought amongst medical men.

The last chapter, entitled "Principles of Mental Hygiene" is full of interesting suggestions. The author lays stress upon the evils of super-idealism, and he points out the importance of the cultivation of a habit of reality thinking, so that life may be faced as it is, not as it is hoped, expected, or feared it may become. The ideal of the *mens sana in corpore sano* is emphasized as being of sound practical value. There is a vigorous protest against prohibition, not only in the guise of temperance reform, but also as a general principle:

The person who relies chiefly upon prohibitive action to curb instinct is preparing a very insecure foundation for the personality, one that is apt to give way under stress and strain at very inopportune moments.

The more enlightened educationalists are aware of the advantages of judiciously guided sublimation over the too rigid discipline of a former generation. Individuality must be preserved so far as is possible, for uniformity is inimical to progress. There has been some discussion recently in the papers about the aims and uses of anthropology. The successful government of native races depends upon an adequate understanding of and sympathy with their psychology. It has ever been the aim of British dominion, as of other great empires, especially the Roman, to allow subject races, to preserve their individuality as far as possible, to allow local beliefs and customs to persist to the limits of safety, and to foster self-determination at the earliest opportunity. As has been the case in other sciences, the best of psychology has been discovered empirically. Many of the principles of the government of nations are applicable to the individual, and *vice-versâ*.

In dealing with mental cases one is sometimes asked for advice as to future conduct and for precautions against relapse. This little book is worth attention for the suggestions that it contains on this subject. Is it too much to expect that our National Council of Mental Hygiene shall one day give us the benefit of its collective wisdom?

W. S. DAWSON.

Les Manifestations Tardives de l'Encéphalite Épidémique (The Late Manifestations of Epidemic Encephalitis). Par le Docteur GABRIELLE LÉVY. Préface du Prof. PIERRE MARIE. Paris : Libraire Octave Doin, 1925. Super royal 8vo. Pp. x + 380. Price 25 fr.

In this volume Dr. Lévy gives the results of her observations on 129 patients who presented late symptoms of encephalitis lethargica. The notes are taken in great detail and carefully classified, and Dr. Lévy has contrived to arrange them with a certain degree of order which is refreshing when compared with the chaos characteristic of so many works on this interesting and important subject.

The cases were observed at the Salpêtrière and so were practically all adults, but a short chapter is included on the manifestations in children between the ages of six and fifteen.

The first of the three parts into which the book is divided deals with the purely clinical aspect. In only about half the cases was there definite Parkinsonism, and it is interesting to note that no more than seven showed bradykinesis.

The second part contains a chapter on the pathological anatomy and the analysis of the cerebro-spinal fluid and a discussion on the pathogenesis. Mlle. Lévy believes that many of the late manifestations are the results of chronic infective processes, and that the tissues of the central nervous system remain infective for rabbits and monkeys for a very long period after the passing of the acute attack.

The third part consists of most interesting clinical notes of 64 typical cases, and a short *résumé* of the whole work.

A preface by Prof. Pierre Marie enhances the interest of this already interesting volume, which concludes with a bibliography containing over 700 references to recent literature.

W. MOODIE.

Report of Commissioners of Prisons and Directors of Convict Prisons, 1923-4. London: H.M. Stationery Office. Price 2s.

This report always possesses a good deal of interest, especially in the side-lights which it sheds upon the relation of mental abnormality to the commission of anti-social acts. Once again the Commissioners call attention to the problem of recidivism. Though the figures are much smaller than those of pre-war days, yet 2,224 men and 2,886 women had had more than twenty convictions recorded against them. In this connection they write:

"The high figures are furnished largely by a limited number of pitiful cases of elderly women who return to prison again and again, and seem unable to cope with the difficulties and temptations of free life. They are harmless, well-conducted, quiet members of the prison community. It seems little use to send them out of prison, and some kind of detention home would be the most appropriate treatment."

Several of the medical reports refer to this pathetic class of social inefficients.

The figures relating to insanity may be tabulated thus:

	Men.	Women.	Total.
Undergoing sentence in local prisons	81	17	98
Certified while on remand	23	6	29
Insane on arraignment	27	9	36
In convict and detention prisons	6	—	6
Borstal institutions	1	—	1
Total	138	32	170

In addition 87 persons were certified as mental defectives.

Several of the medical officers make reference to the difficulty in dealing with many of the weak-minded persons introduced by the "from birth or an early age" clause in the definitions of the Mental Deficiency Act (*e.g.* Holloway and Manchester). In this connection there is a long quotation from the report of the Medical Officer of Birmingham Prison, who writes:

"The vital necessity of the mental examination of offenders is indicated by the fact that there has been a marked increase in the number of certifiable mental defectives received on conviction and in the number of convicted prisoners found insane on reception. But the question of eliminating lunatics and mental defectives from our prison population is not the only point involved. The matter goes much deeper than this, and is intimately connected with our measures for the prevention of crime. . . . All abnormal conduct tends to be anti-

social; whatever we term 'criminal' conduct is only one branch of the tree. This fact is hardly ever recognized, and this non-recognition is one main reason for our failures. These go back, in many cases, to a very early stage in the life of the individual. Character deviations occur in childhood which, if uncorrected, have great effect upon the after-career of the individual, and which are often most potent factors in the production of crime. . . . The treatment of the offender is entirely a psychological problem. Every case requires individual investigation and consideration. But this primary fact is not recognized. To take one example, the success of probation depends entirely upon psychological considerations. Yet many of those who are responsible for the probation system are unaware that the problem has any psychological side. . . . There are abnormal mental conditions, not yet recognized by the law, which are potent factors in the production of crime. It is not necessary for me to mention mental conflict and repression. But there are other conditions. . . ."

The Medical Officers of Wandsworth and Wormwood Scrubs draw attention to the unsatisfactory method of dealing with lads of mental instability by committal to prison. These remarks are endorsed by the Medical Officer of the Feltham Borstal Institution, who appears to place more reliance upon the value of intelligence tests than many of us are prepared to accede, though he emphasizes the importance of probing behind the actual offence for predisposing or determining factors. In England we are too much obsessed with the question of intellectual capacity, forgetful of the fact that juvenile delinquency is but one aspect of a many-faceted problem, and that feeble-mindedness, crippledom, neglect, cruelty and social environment are other factors in the same protean problem of adolescence.

Year by year governors of prisons, medical officers and chaplains state the result of their experience as somewhat disappointing, but the slow progress registered year by year in their report is neither due to the Commissioners nor to their officers, but rather to a lack of vision and intelligent understanding of their powers which are shown by so many magistrates. G. A. AUDEN.

The Medical Year Book and Classified Directory, 1925. Edited by CHARLES R. HEWITT. London: William Heinemann (Medical Books) Ltd. Second year's issue. Crown 8vo. Pp. 612. Price 12s. 6d.

The second annual issue of this book fully confirms the favourable opinions as to usefulness as a work of reference covering the wide activities of the medical profession expressed on its first appearance last year. It also includes a classified directory of consultants of all kinds, of teachers in the medical schools, and of the medical staffs of hospitals, infirmaries and other medical institutions.

It is a very complete index of information constantly being

sought by practitioners in every sphere of medicine, most conveniently classified, each subject being treated of sufficiently comprehensively for all ordinary occasions, which cannot be said of many other works of this character.

Psychiatry is even more than adequately dealt with in these respects, and we notice that under London consultants and specialists in mental diseases are included the medical staffs of all the Metropolitan mental institutions. As regards the Provinces, this section of the directory and that relating to nervous diseases is omitted, but not as regards Scotland. It is suggested that the lists of consultants and specialists should include only those in actual practice, *i.e.*, those whose services are available to the general public.

The book is of a convenient size and is handsomely bound.

J. R. LORD.

Part III.—Epitome of Current Literature.

1. Neurology.

The Origin and Paths of Volitional Impulses [Über den Ursprung und die Bahnen der Willenimpulse]. (Zeitschr. für die ges. Neur. und Psychiat., 84, 3, 1923.) Küppers, E.

The work of the past ten years on the extra-pyramidal motor system is the beginning of a new era for neurology, in that it not only opens new realms for investigation and fills a blank on the neurological map, but also forms a bridge between neurology and psychology. Though for the present the collection of data must be the first consideration, the author thinks that it may be of service to set up a hypothesis, and test in its light the facts already available. He has attempted before to start from the psychological aspect and work thence towards neurology. In this work he starts from neurology and attempts to trace its connections with psychology, and thus bring fresh light upon neurological problems.

The whole idea of volition in the nervous system presupposes the existence of some circumscribed area which is especially closely connected with the inner processes of feeling, reflection and taking decisions, and which in the moment of execution of an action discharges the whole series of impulses required for its special form and mode of acting. Thus all consideration of the paths taken by volitional impulses must also deal with their point of origin. Neurologists tend to assume that the cerebral cortex is this point, though this is highly problematical, whereas psychiatrists and physiologists see in the extrapyramidal tracts an escape from the difficulties which this assumption has from their standpoint.

The stimulation and defect phenomena in the cortex show indeed some of its essential executive functions, but do not exclude the

possibility that some other region may be the original source of the impulses it executes. Phylogenesis shows that the cortex is relatively recent in development—a recent adaptation to a complicated environment. But those animals who have no cortex may yet have some mental life and volition. Ontogenesis teaches the same lesson. The newborn child cannot be a sort of vacuum—it has some sort of mental life and a will before its cortical apparatus attains functional completeness. Thus it would seem that the cortex, like the muscles, is a tool of the will, and not its source and material basis.

In attacking the problem of localisation of mind there has been too much striving to force mental processes into organic terms. The two should be considered separately, keeping asunder the biological ideas of person and organism, until we reach the point where they merge. Psychology is the study of the individual as an entity in its relations with its environment. Each individual has a body, distinct from the environment, which enables him to enter into relation with that environment, and which is the tool of the individual. The personality is an independent power to be distinguished from the complex entity of its tool, the body. The personality must have its headquarters at some point in this tool, where it receives and dispatches messages from and to the external world, forming a psychical reflex arc with its centre at such a point as enables it to dominate all other reflex arcs and processes.

From the standpoint of the anatomist and physiologist, the organism is the unit of life, a sum of living parts which we call cells, spatially united, with capacities beyond the mere summation of the individual activities of its parts. The control and unification of these activities involved in processes of growth, repair, metabolism and defence is primarily in the cerebral centres of the vegetative nervous system, the basal nuclei and central grey matter about the third ventricle, and this region appears to be that very centre-point for the receipt and dispatch of information and commands in the organism, which it was found necessary to assume for the personality. This must be the organic basis of the psychic reflex arc. Thus if every living being is psychologically a subject, and biologically an organism, it may be said that every subject is an organism in so far as his component parts are grouped into an internal functional unity; the same subject is again a person, in so far as a portion of his component parts enables him to deal as a whole with his environment. That there must be one centre for both these aspects, one facing both inwards and outwards, is the simplest hypothesis to cover the facts.

Where is this centre? Those, like Fankhauser, who believe that it lies in the cortex, assume that some special layer of cortical cells has especially close connections with the vegetative apparatus, while the remaining layers work the sensory-motor apparatus. This does not, however, fit in with the facts of ontogeny and phylogeny, which lead us to the simple explanation that the centre of the subjective personality and of the organism alike lies in the central

grey matter of the third ventricle, whence it influences the "animal apparatus" through the neighbouring thalamus.

The next section gives at some length the facts on which this view is based, these being drawn from biology and physiology; it ends with the following summary:

A natural subdivision of the whole motor apparatus from a functional standpoint is that into (1) a thinking system, found only in human beings, consisting of certain parts of the thalamus and cortex, and (2) a system of perception and action, common to men and other animals, which includes (a) a system of preparation, or setting up of a goal, consisting of thalamus and "reflecting" cortex, and (b) a system of execution, consisting of the thalamus and motor cortex, giving direction, of neostriatum, regulating posture, and of pallidum, which is executive. To these must be added the purely neurological differentiation into forebrain system, cerebello-mid-brain system, and segmental or metameric system; of these the first acts on the third either through the second by thalamo-cortical extrapyramidal paths, or without its mediation by the thalamo-cortical pyramidal tracts.

The third section applies this hypothesis to clinical conditions.

Sleep is a state in which volitional impulses cease to influence the organism, and is most easily explained as being a detachment of the "centre of the personality" from its connections with its tool, the organism. If this connection is localized in the third ventricle grey matter, the facts observed in organic affections of this region, such as encephalitis lethargica, are readily explained. Similarly in cases of narcolepsy we find attacks of sleep accompanied by a liability to the loss of volitional motor control under emotional stimuli; even in a normal person excessive laughing is associated with motor weakness. Dreams are characterized by the partial or complete abolition of the developed personality, leaving a sort of mental activity lacking this co-ordination and direction volition.

In *hypnosis* such co-ordination and direction of activity leaves the control of the individual and comes under that of the hypnotiser.

In *hysteria* there is an alteration of the attitude of the personality towards the conduct of the organism, which is directed to a great extent towards a different goal and assumes a different pose.

In *dementia præcox* this dissociation has gone further and the personality has ceased to exist, while the organism blindly obeys its impulses; these are felt by any remnants of the conscious personality as blind forces governing it, and against which it is powerless. In certain cases an anatomical basis for this state has been found in the region of the intra-thalamic association neurones, which may produce a chronic dysfunction of the cortical and endocrine systems which have been found in a pathological state in this disease.

- In *epilepsy* the author believes that the patho-physiological process is characterized by attacks of discharge of impulses from the thalamus, resembling the periodic motor discharges in spasmodic tic or facial spasm. In view of the central position of the thalamus

some stimulus may act at various points—at the cortex in traumatic epilepsy; or by direct action of toxins in increasing the readiness of the thalamus to discharge impulses, as in uræmia; or innate defects of the cortex or of metabolism may lead to the same result as probably in idiopathic epilepsy. Experimental convulsions produced by stimulation of the cortex have been shown to pass, not through the pyramidal paths, but probably through the extra-pyramidal tracts (Prus), and it is now generally accepted that the tonic phase of the fit is a discharge of excitement from the infracortical motor apparatus (Binschwanger).

This theory explains also other epileptic manifestations; the "absence" represents a discharge from the thalamus only towards the cortex, while the subcortical motor processes are unimpaired. In the major fit all the motor apparatus is also affected, while in the twilight state the dislocation of relations between consciousness and motor activity and the normal volitional direction produces the aberrant actions and amnesia.

Frequent and lasting abnormality of the direction of discharge of excitement must lead to anatomical changes such as are found, and the peculiarities of epileptic dementia distinguishing it from cortical dementias correspond to the author's view. The slowness of digesting new experiences and incorporating them with the personality points to a defect in the central connections of body and mind, and the emotional defects point to a dysfunction of the emotional centres, known to be situated in the central grey matter of the third ventricle region. Research should be directed towards finding out the nature of possible pathological changes in the thalamus and basal nuclei which have not yet been adequately investigated in this disease.

M. R. BARKAS.

The Babinski or Extensor Form of Plantar Response in Toxic States.
(*Lancet*, January 10, 1925.) Elliott, T. R., and Walshe, F. M. R.

With certain exceptions after the age of infancy an extensor plantar response is usually taken as a sign of organic disease of the pyramidal tract system. It may occur as a transient phenomenon in association with fits due to epilepsy or uræmia, and it has also been found by Kleitman in healthy young adults during deep sleep following its deliberate deprivation for two to four days. The extensor response has seldom been observed in pathological conditions other than organic disease of the central nervous system, possibly because it has not specially been looked for, although Rolleston and Willcox have found it in one or two cases of advanced hepatic disease. The authors of this paper record a number of different conditions in which they have elicited this sign. They are of opinion that an extensor plantar response is of definite value as an indication of the onset of cholæmia in liver disease, and is usually accompanied by mild delirium and drowsiness which terminate in coma and death. It may occur also in eclampsia and delayed chloroform poisoning. It has been found in hypoglycæmia produced by overdosage with insulin, but does not occur

in diabetic (hyperglycæmic) coma. Sulphonal and coal-gas poisoning are two other conditions in which an extensor response has been observed. Finally, scopolamine has been found to convert a flexor response into an extensor type in cases where the pyramidal tract system is only slightly affected. Prof. Besta has described a similar effect with pilocarpine. This paper is of special interest as producing further evidence of a relation between certain toxic states (especially hepatic disease) and nervous phenomena.

W. S. DAWSON.

Myelinogeny as Applied to the Study of Behaviour. (Arch. of Neur. and Psychiat., July, 1924.) Tilney, Frederick, and Casamajor, Louis.

Genetically, behaviour comprises reactions of at least two varieties, unlearned or instinctive, and learned reactions conditioned by the individual's experience and development. Either variety in the adult is extremely difficult to investigate. Much enlightenment has been gained by the study of behaviour in its primitive expression as manifested by the infant, and this approach might, with great advantage, be prefaced by a better understanding of behaviour in lower animals. Many human reactions present an indelible phylogenetic imprint, especially the unlearned reactions expressing an individual's heritage from a long evolutionary ancestry.

It is widely assumed that behaviour is dependent upon a structural basis, implying a mechanism capable of converting sensory stimuli into definite effector responses, and the object of this study is to investigate whether the sequence in the development of reactions in the young growing animal may be explained by the establishment of specific reflex arcs.

The authors elaborate Flechsig's "law of myelinogeny," discuss the various arguments which have been advanced for and against it, and summarize the literature in respect of the chemical and physical nature and origin of myelin itself.

Is it possible that the appearance of definite behavioural components in the growing animal coincides chronologically with the myelinization of definite fibre systems? In order to answer this question many litters of kittens were studied from three different aspects. First, the reactions of young animals were observed from birth to maturity, each new reaction marking a critical stage in the development of behaviour. Second, the central nervous system was removed from animals at the time of birth and each critical stage thereafter, prepared for the Weigert-Pal method and cut in serial sections. Third, an attempt was made to correlate these reactions with myelinated fibre systems making their appearance at the several stages of behavioural development.

The sequence of somatic reactions was studied up to the thirty-first day, and detailed analyses from the above three aspects, illustrated by many diagrams and microphotographs, are presented on the conditions observed up to the fourteenth day, particular

attention being given to the undermentioned seven reactions, which were considered distinctive and specific :

- (1) Postural reaction, appearing two minutes after birth.
- (2) Crawling reaction, eight minutes after birth.
- (3) Sucking reaction, ten to twelve minutes.
- (4) Synergizing reaction, seventh day.
- (5) Primitive escape reaction, seventh day.
- (6) Eye-opening reaction, seventh day.
- (7) Eye and head-turning reaction (first appearance of visual pursuit), fourteenth day.

These analyses allow the following conclusions to be drawn :

(1) A definite chronological sequence in the appearance of well-defined behavioural reactions can be recognized.

(2) Myelinogeny in connection with these behavioural components affords strong evidence in the cat that the deposition of myelin is coincident with the establishment of function in definite fibre systems.

(3) All the spinal and cranial nerve-roots are myelinated at birth.

(4) The tracts in the central nervous system first to receive their myelin sheaths are the posterior longitudinal fasciculus, the pre-dorsal fasciculus, the deitro-spinal tracts, the secondary cochlear tracts, and the trigeminal tracts.

(5) By assuming a functional capacity in the fibres myelinated at birth, it is possible to explain the first behavioural components on the basis of stimuli received and responses determined thereby.

(6) Further evidence of the coincidence of myelinization and the establishment of functional activity in the nerve-fibres is offered by the following examples :

(a) The establishment of the synergizing (co-ordinative control) reaction simultaneous with myelinization in the spino-cerebellar tracts, the cerebellar vermis, superior cerebellar peduncle and rubro-spinal tract.

(b) The establishment of the primitive escaping reaction with myelinization in the spino-thalamic tract.

(c) The establishment of the eye-opening reaction with myelinization in the optic nerves and tracts.

(7) The early connections with the reticular formation of the mid-brain by means of myelinated fibres make it probable that this region plays an important rôle in the correlations necessary for primitive automatic associated movements.

(8) Hearing is the only special sense at birth provided with a completely myelinated system of fibres. Probably this is the only special sense contributing to the directive influence guiding early movements. The most important directive influence is the trigeminal innervation.

(9) The scattered distribution of the myelinated fibres at birth makes it appear unlikely that myelinization bears any special relation to the degree of vascularization of the nerve axis. Fibres of every size found among the early myelinated systems lend no support to the theory that fibre calibre may in some way influence myelinogenesis.

(10) The evidence produced by this study seems to lend support to the hypothesis of Flechsig, and indicates possibilities of further investigations concerning the structural basis of behaviour. The simpler unlearned reactions must be more fully understood before deductions can be made respecting the higher synthetic processes of the brain.

A. WILSON.

2. Clinical Psychiatry.

Contribution to the Study and Treatment of Acute Delirium and Delirium Tremens [Contribution à l'étude et au traitement du délire aigu et du delirium tremens]. (*Le Prog. Méd.*, February 4, 1922.) Damaye, H.

The author reports and discusses certain cases of acute delirium and delirium tremens. He believes the two are much alike clinically, pathologically and in their treatment. Both follow septiciæmias favoured by insufficient nourishment and overwork. Both are curable if taken in time by anti-infectious treatment (serums, electrargol), but are rebellious where there is organic degeneration or if induced by grave infections. One of the great predisposing causes is the refusal of food in anxious melancholics when they have been kept at home and have not been sufficiently or artificially fed. The first three cases all died. These were :

(a) A case of anxious melancholia following a period of prolonged refusal of food, with death from acute delirium attended by streptococcal and tetragonal infection in the blood.

(b) Delirium tremens with vaginal infection.

(c) Acute delirium with purulent bronchitis.

These three cases arrived too late at the asylum, in such an advanced stage and with such advanced visceral degeneration that treatment proved useless.

He then relates two cases which recovered. The first was one of acute delirium in a stuporose melancholic badly nourished ; the second a case of delirium tremens with a blood infection.

Acute delirium and delirium tremens are clinically analogous and have a course and a gravity much the same. These patients are infected by microbes latent in the organism or accidentally acquired. The insufficient alimentation, the overwork and the alcoholic excess are the causes which render the soil favourable for the pathogenic organisms. In cases where long-continued alcoholism or previous grave infections have caused degeneration of the viscera (heart, liver, kidney, spleen), septiciæmia is favoured and therapy is useless ; but in less feeble patients acute delirium and delirium tremens are curable by anti-infectious methods if the patient is treated actively from the beginning. The heart should always be watched and often sustained. The author recommends darkness and the application of a wet compress kept continuously over the head and face.

W. J. A. ERSKINE.

Prohibition and Alcoholic Mental Disease. (*Mental Hygiene, April, 1924.*) Pollock, Horatio M.

The statistics quoted in this article are without camouflage or maltreatment, so that the conclusions justified by the data are relatively insignificant when compared with the exaggerated statements of propagandists on both sides of this important question. Mental disorders considered as of alcoholic origin are pathological intoxication, delirium tremens, Korsakow's disease, acute hallucinations and certain paranoid types. The period covered by the data is from 1909 to 1922, as previous to 1908 the classification of mental diseases was unreliable.

While during this period there is an irregular increase in the total number of new cases of general mental disorders, those of alcoholic origin have fairly steadily and markedly declined. This decline is greater among women, probably because the bootlegging trade reaches comparatively few, and is in part due to a change in the habits of the people and in part to restrictive laws. A short-lived increase was observed in 1917, owing probably to the generalized excitement and change of habits caused by the entrance of the United States into the Great War. The decline was resumed in 1918, its lowest point being reached in 1920, the first year of prohibition. A marked falling off in the excessive use of alcohol prior to prohibition is emphasized, and a relative increase in pathological intoxication since prohibition is said to be due to sudden excessive drinking in persons hitherto unaccustomed to alcohol.

Alcoholic insanity, always much less in rural than in urban districts, has sustained a relative decline in both, so that there is now very little in rural areas, practically none among women.

In the foreign born, constituting 27.2 per cent. of the population of New York in 1922, alcoholic insanity is five times more prevalent than in native whites of native parentage; the rate in negroes is also high. In native women of native parentage it is extremely low. It would seem from this that the enforcement of prohibitory laws is largely a matter of changing the fixed habits of the foreign-born population.

The data confirm other studies in showing that alcoholic insanity occurs principally in advanced middle life following several years of excessive drinking, thus casting doubt on the statement that alcoholic insanity is a symptom rather than a disease. Women enter hospital at a later age than men.

Education has little influence, illiterate alcoholics not differing widely from other adults in the general population. Labourers and artisans employed in seasonal occupations and on the margin between self-support and dependency contribute the highest percentage in respect to economic conditions.

In new cases married persons predominate, and six times as many married as single women suffer from alcoholic insanity. This can be accounted for by the predominance of the married in the general population, and from these data it would appear that marriage has but little influence.

A. WILSON.

Observations on the Passage of a Barium Sulphate Meal in Twenty-four Cases of Mental Disorder. (Brit. Journ. of Radiology, February, 1924.) Stanford, R. V., and Goodall, E.

The authors have already shown a series of skiagrams in ten cases of dementia præcox (Medico-Psychological Association, July, 1921), from which they drew the following summary of conclusions: In 6 cases there was delayed evacuation or retention of fæces in the large bowel; in 1, ptosis of the large bowel; in 5, spasticity of the colon; in only 3 was there freedom from abnormalities of the above nature.

The 24 cases here reported are in continuation of this study, and include several clinical types of mental disorder. Fifteen were males and 9 females, their ages varying from 21 to 50. Instantaneous exposures were taken under identical conditions in all cases, with the patient in an upright position. A palatable meal containing four ounces of barium sulphate was given after preliminary clearance of the bowels and the radiograms taken at 0, 1, 4, 7, 24 and 48 hours after. Five cases were not recent, and the 19 who were recent and acute were examined as soon after admission as possible.

Only 2 of this series were possibly free from abnormal states of the gastro-intestinal tract, the evidence pointing to stasis, to ptosis of the transverse colon (sometimes of the stomach also), and spastic contraction of the same in a large number of instances.

Four cases are selected as exemplifying these conditions, and clinical notes, illustrations with their explanation, and comments are presented concerning them. A. WILSON.

A Case of Depersonalization [Ein Fall von Depersonalisation]. (Zeitschr. für die ges. Neur. und Psychiat., vol. lxxiv, p. 592.) Hartmann, H.

The case described in this paper is a typical one of its kind, in which the onset of the symptoms appeared to follow and be caused by a definite emotional stress. The patient was a poorly educated peasant, who entered the clinic complaining of an inability to form mental images of familiar persons and objects, with anxiety and pain behind the eyes when trying to do this. Everything appeared to him strange and unfamiliar, his head felt stupid and he felt himself changed. His thinking seemed to him impeded, and his emotions unreal; his whole attention was fixed on his own mental state, which caused him worry and anxiety, and was very unpleasant to him. His sleep was indifferent, and in his dreams his former capacity to think and see clearly was restored.

The symptoms began soon after he learnt that his wife had been unfaithful to him; he found himself unable to form a mental picture of this infidelity, or to feel keen emotion about it; this incapacity spread to all recent and remote experiences. He remained able to describe accurately past or recent and present impressions in detail, but they had for him a degree of unreality, and he lacked any clear mental picture while recalling them.

In this case the depersonalization syndrome formed the whole

illness, and there was no evidence that it formed the introduction to any other neurosis or psychosis. It shows the flight from a painful reality common to most neuroses, and serves the purpose of making him indifferent to the experience; yet the defence is not satisfactory, since the condition itself is felt as distressing. Why should the loss of interest in external reality bring with it in these cases also an inability for the person to merge himself fully in his own thoughts, instead of the turning to a life of phantasy such as is found in schizophrenia?

More investigation is needed into the part played by instinctive and emotional trends in perception. The author suggests that a repression of the tendency to "viewing" may play a part in this detachment from the world of perceptions, and quotes a second case showing this tendency. The case here described was not considered suitable for analysis, but the author suggests that with more extensive investigation such cases may prove to have some predominating constitutional trend which determines the form of the neurosis.

M. R. BARKAS.

States of Depersonalization [Über Depersonalisationszustände].
(*Internat. Zeitschr. für Psycho-analyse*, i, 1924.) Nunberg, H.

The author begins by defining what he means by the term "depersonalization": a state in which the ego and the external world appear to the patient to be different from usual. All degrees of this state may be met with, from simple, hardly noticeable feeling of estrangement from the external world to the grossest disturbances of self-feeling expressed in the complaint, "I have lost myself, my personality."

He proceeds to explain why the estrangement from the outer world and that from the ego are grouped together. Firstly they usually occur together; secondly, the formation of a definite ego-boundary is preceded by stages in which the external world is not yet recognized as distinct from the self, and in which sensations arising in the body are not distinguished from those coming to it from without. Even in normal adult life this distinction is far from being as complete as we usually believe.

Apart from extreme cases, such as schizophrenia, Nunberg points out that some degree of depersonalization occurs during the early stages of most neuroses and psychoses, and also may appear as a transient phenomenon in the course of treatment. He quotes a number of cases showing how this symptom arose in association with some emotional deprivation which was felt as an injury to the ego, and this real ego no longer satisfies the ego ideal, which rejects it and feels it to have become alien together with all its experiences. To overcome the disturbance of self-feeling the depersonalized patient does not regress like the schizophrenic into infantile narcissism and hallucinatory wish-fulfilment, does not exchange his real ego for the infantile narcissistic one, but merely wails and complains in an infantile way that he has lost his feelings, his capacity

to love, his energy, his "self." Nunberg says: "In schizophrenia and in melancholia the ego is directly opposed to the ego-ideal. In the conflict resulting from this we find that in schizophrenia the ego-ideal succumbs to the narcissistic ego, while in melancholia the ego succumbs to the ego-ideal. In depersonalization, on the other hand, we find simply the registration and complaint of the fact that the ego no longer fulfils the requirements of the ego-ideal, without this leading to further reactions, as in other forms of illness. The ego-ideal has apparently broken off relations with its ego (in so far as the *reality* of the ego's sensory perceptions, emotions and feelings are concerned), and does not wish to know any more about it.

The author next asks what is the further fate of these patients? They are relatively rare, and often escape notice unless specially looked for. He discusses some cases investigated in detail in which there seems to be a characteristic sequence of events: (1) A loss of emotional gratification, (2) feelings of depersonalization, (3) in connection with this alteration of the ego a revival in consciousness of infantile unconscious phantasies previously repressed. Finally these latter may give rise to neurotic symptoms, anxiety, conversion hysteria, or occurring when the phantasies are again being repressed.

He then makes the further generalization that such feelings of strangeness are the expression of the beginning of a phase of repression, in which libido is withdrawn from the forbidden or inaccessible object. In normal people they are transient and scarcely noticed; where they persist the patient remains, as it were, half-way on the road to a neurosis; whether further development into neurosis or psychosis occurs will depend on the predisposition and unconscious fixation at earlier stages of development either of libido or of the sense of reality.

M. R. BARKAS.

Encephalitis Lethargica and Dementia Præcox [Über *Encephalitis epidemica und Dementia præcox*]. (Zeitschr. für die ges. Neur. und Psychiat., July, 1923.) Lange, J.

There can be no doubt that similar clinical appearances may justifiably be referred to similar functional areas of localization, whether they be the expression of some gross organic lesion or of a merely functional disorder; and although such a similarity may throw no light on pathogenesis, yet a comparison of some of the strikingly similar symptoms found in encephalitis and in dementia præcox of the catatonic type may help us to an understanding of their common mode of production.

Localization of organic changes in dementia præcox has as yet thrown little light on its causation, but histopathology is still far from perfect, and the known abnormalities of the endocrine and metabolic systems found in the disease may produce localized neurological changes not discoverable by our present methods. Hence the comparison with encephalitis and localized pathological

changes in the nervous system caused by it may elucidate the problems of dementia præcox.

In the latter disease the suggestion has already been made that some of the constant motor disorders, including those of speech, may be referable to localized lesions affecting function, if not structure. Kleist, following Wernicke, has long pursued this argument, and has tried to show that the motor disorder may be responsible for some of the disorder of mind; Isserlin disputes this with many cogent facts, yet the question is far from being settled. Encephalitis may give us clues as to the effect on the mind of certain motor disturbances.

The general restlessness often found in encephalitis, as in other infectious deliria, is unlikely to throw light on the subject under discussion. For this purpose the most obvious syndrome is that of a loss of initiative and of spontaneity which characterizes encephalitis affecting the mesencephalon, and also dementia præcox. In both, this loss is associated with rigidity and alteration of tone, though the catatonic state is more variable, the reaction to stimuli different, and negativism is absent in the encephalitic case.

This absence of spontaneity is found in other psychotic states; in organic dementias it may be attributed to the general failure of all mental functions. In the post-rheumatic psychoses described by Knauer it is associated with a dislike of taking any initiative, an inhibition of thought, together with disorders of attention and memory, and a tendency to misinterpretation of what is perceived; so that there seems to be a general impeding of all mental processes, of which the loss of spontaneous activity is only a part. Further, such psychoses in varying degrees of severity often follow an attack of chorea, and the whole post-rheumatic mental and physical disorder shows close analogies with that of encephalitis, chorea being commoner in children, psychoses in adults. In these cases the akinesia is not accompanied by tension (rigidity, hypertonus). Again, certain types of melancholia are characterized more by this inhibition of mental and physical activity than by a depressed emotional reaction; in early stages of the development of cerebral tumours, when no localizing signs are present, a similar "mental stickiness" may be found, and this is especially the case in tumours of the frontal region or of the corpus callosum. In the light of this manifold causation, it is worth while to try and find whether in encephalitis we cannot obtain some evidence of the localization of the syndrome.

The first and most obvious question is whether the lack of spontaneous mental activity has any connection with definite motor disorders, notably the rigidity, and in what relation these stand to one another. They are certainly not constantly associated; in two cases with similar physical disability—extreme rigidity and helplessness—one, whose eye-movements were also impaired, was apparently mentally inert, while the other showed full interest and no lack of initiative; but in most cases there seems to be no definite parallelism between the degree of rigidity and the mental activity or inertia. At the same time, when one motor system is grossly

impaired it is very probable that others may also be affected. Stertz mentions the impaired readiness for conduction of nervous impulses, the slowing of response and prolongation of contraction.

Bostroem emphasizes the absence of normal associated movements in the Parkinson syndrome. The reduction of automatic movements of expression even in non-rigid cases entails a conscious voluntary effort on the patient's part to perform what is automatic in the normal person, and an impulse does not flow spontaneously into motor expression. This impediment reacts upon the mind in two ways—impressions are less readily received, owing to the lack of automatic adaptive movements, and a far greater amount of psychic energy is absorbed in performing what should be automatic movements, leaving less at the patient's disposal for spontaneous activity.

How far is this motor difficulty responsible for the apparent lack of thinking in such cases? Bostroem explains this by the defect of automatic speech movements; there is no doubt that many people think by means of speech kinæsthetic and motor images. Some such patients in whom the eye-movements are intact evidently think in visual images instead of in words, and this change of mental focus affects their whole outlook. A patient of good intelligence and insight states that he is not without impulses, but that the difficulty of expression robs him of pleasure in them, and he loses interest and quickly becomes fatigued by the excessive effort demanded by motor expression. The next question is whether the sense of fatigue in these patients can be wholly accounted for in this way.

One of the best ways of inducing sleep is to bring about complete motor rest; possibly the only way to make the restless, sleepless encephalitic child able to sleep is by means of packs which prevent movement. The absence of motor effort may be in part the cause, as well as the result, of the sense of fatigue, so that a vicious circle is set up. Thus one patient, who had previously rested on medical advice, improved greatly when stimulated to activity, becoming also more alert mentally and felt less fatigue.

Yet there are great differences among different patients, and other factors must be involved. One retires within himself, when his contact with his environment becomes difficult, and yet is not really depressed. Another reacts to his disability with depression over it. Another will worry and brood over his real disability and add to it a number of hysterical disorders. Young people often take the path of least resistance, and sink to a lower social and moral level.

What determines these differences? Is an underlying difference of constitutional disposition responsible, has the organic lesion brought out some underlying preformed mode of reaction, or has it created in addition to the motor disability some further alteration of the personality? Some patients who give an impression of mental inertness and indifference are not conscious of any such change in their inner feeling of interest and intact personality. Others, however, complain of an absence of emotional reaction in

themselves, even when this is not apparent in their reaction to stimuli.

In dementia præcox we find a loss of initiative combined with a variety of motor manifestations, but however the latter may at a given moment resemble those produced by organic lesions involving the motor automatisms, yet their frequent variations from moment to moment suggests that here the primary factor is the mental and affective state. Steiner contrasts the impulsive actions set going by an inner impulse, combined with a lack of response to external stimulation in this disease with the behaviour of the encephalitic who fails to act on his own initiative, but responds, even if only temporarily, to an external suggestion or demonstration of the object and mode of action. There is also a difference in the hyperkinetic manifestations, which occur chiefly in encephalitic children, and these, as in the schizophrenic, may be referable to a freeing of lower centres from cortical control. Rigidity and *flexibilitas cerea* in præcox are more often abolished by diversion of attention, while those of encephalitis can be abolished by voluntary effort, and reappear when this is relaxed.

Many of the mental manifestations of encephalitis seem referable to a setting free of some underlying disposition—to schizophrenia, to compulsion neurosis, to hysteria, etc.—rather than a direct result of the disease process; the analogies of the motor disorders in the two diseases is superficial rather than complete, and can hardly be held to be due to the same lesion or localization.

In general there seems to be common to the two some defect in the functional relations of higher and lower mechanisms to one another; in the encephalitic the latter and in dementia præcox the former are chiefly affected.

M. R. BARKAS.

3. Psycho-Pathology.

Occupational Mental Disorders: The Pathology of Overwork [*Les Maladies Mentales professionnelles: La pathologie du travail augmente*]. (*Le Bull. Méd.*, November 27, 1920.) Benon, R.

There is a progressive and unabated increase in cases of general and special pathology in the world of work. Like all medico-legal questions nowadays the question of the relationship between illness, and especially mental and nervous illness, and work, such as the aggravation of a malady by work, is of a practical rather than a scientific nature. There are certain cases which cannot be the subject of controversy, such as mental illnesses due to accidents at work. But there are others where the elements of the dispute are elusive, and the relation of cause and effect between the mental illness and the work is often uncertain. It is curious that in modern times there is a tendency for public bodies and administrative and judicial authorities to cause medical men to undertake work which is not really medical. In the same way that insanity does not belong to medicine in the strict sense of the word, the question of

responsibility is surrounded with questions not truly medical, and the question of compensation in occupational maladies shows in the great majority of cases much less need of medical science than of practical judgment.

During 1915 and 1916 almost all the mental and nervous specialists refused to recognize the relation of cause and effect between mental maladies and the war. Ideas since then have developed, but the facts remain the same—that is, science always ends by consenting to adapt itself to social exigencies. There is a scientific relation especially in the matter of ætiology which it is important to remember. For occupational mental diseases not due to accidents the solution of the problem will only be in the passing of a law insuring against all maladies in general.

The cause of the increase in industrial mental disorders is due to the increase in alcoholism, tuberculosis, syphilis, and all other infections in town life and the inefficiency of social and industrial hygiene. At the works two causal factors are traumatism and overwork. Traumatism is less provocative, and only exceptionally complicates mental and nervous disorders. Overwork, physical and intellectual, with or without chronic alcoholism, is, on the other hand, an ætiological factor of the first importance. It is caused at the works by piecework and by all other methods which aim at quickness in manufacture. It is also caused by work at home. Probably the eight-hour day diminishes overwork, but on the other hand it leads to more supervision and more minute time-checking. The workman becomes a machine of iron amongst machines of steel, a living tool who works with the same exactitude as a tool of metal. Overwork, the primary factor in a great number of mental maladies, leads to states of nervous exhaustion (neurasthenia), and it is upon these phenomena of general asthenia that the chronic psychoses or dementias are grafted. Thus amongst the most important causes of occupational diseases are physical and mental overwork, especially when following infections and intoxications.

W. J. A. ERSKINE.

- (1) *Psycho-diagnosis* [*Psychodiagnostik*]. (Arb. zur angewand. Psychiat., Band ii. Ernst Bircher Verlag in Bern und Leipzig, 1921, pp. 174.) Rorschach, Hermann.
- (2) *The Reaction of the "Pycknish" Type in the Rorschach Test* [*Die Reaction des Pyknikers im Rorschachschen psychodiagnostischen Versuch*]. (Zeitschr. für die ges. Neur. und Psychiat., June, 1924.) Munz, E.
- (3) *The Utilization of the "Form Test" for Psycho-analysis* [*Zur Auswertung des Formversuchs für die Psycho-analyse*]. (Ibid., April, 1923.) Rorschach, H., and Oberholzer, E.

(1) This small book deals with a method devised and elaborated by the author which he considers to be of great diagnostic value in mental disease. It originated from the well-known game of guessing character from a person's signature, after doubling over the paper on which it was written in ink, so as to make a "ghost."

A few large blots of ink were dashed on to paper and the blotch produced by doubling this was given to the person under examination, with the request that he should say what it looked like to him. In order to compare cases Rorschach has produced a series of ten plates, some black and white, some coloured, which he uses as test forms. These are given in succession to the patient, who may turn them about as he will within arm's length. Beyond urging him to give at least one answer to each, no sort of suggestion or limitation is imposed. The answers are written down as they are given, any emotional reaction being also noted.

The test is essentially one which aims at revealing the patient's capacity of observation, and of association and comparison with his pre-existing mental images. All degrees are found between the simple recognition of a form as representing some definite object, with little or no criticism or analysis of differences, and the pedantic seeking for exactness which cannot give imagination free play, and demands complete and accurate resemblance to the mental image. The apprehension of the image as a whole or in detail, and the interpretation according to form, colour, or kinæsthetic images called up, form the basis of the classification and evaluation of the answers.

The greater part of the book consists in the elaboration of this classification, and illustrations of types of reaction in various cases showing how the specific "formula" is obtained. This part seems of less obvious value. Just as in the similar early work with Jung's word-association test, the effort to obtain some mathematical statement is unsatisfactory, and the figures vary greatly with the personal equation of the individual who classifies the answers. It seems probable that this test, like the other, will be found most useful if applied in a more general way, less for the object of rigid diagnosis than as a means of approach to the patient's complexes, and a basis for further therapeutic conversation and free association. The whole emotional reaction of the patient during the test may also give valuable clues as to his attitude towards reality and his environment.

The test series is now used as one of the routine methods of examination of patients in some Swiss mental hospitals, and may well prove worth introduction into those of this country. Its appeal to the emotions and phantasy make it applicable to patients who prove inaccessible to more intellectual tests, and quite definite results have been obtained with the mentally deficient, demented, and less co-operative types of cases into whose mental life we can penetrate only with difficulty.

(2) In this lengthy paper the author describes his experiments, undertaken to test the validity of Kretschmer's views about the correlation between physical and mental constitution. For this purpose he considers the Rorschach test peculiarly suitable, since it gives data concerning the quantity and quality of affect in the reacting types of individuals, and shows clearly a distinction between the schizoid and cyclothymic modes of reaction.

He selected 100 normal individuals, grouped into four social

classes, in each of which similar results were obtained; these were recruits, patients with physical illnesses in hospital, working-class people and intellectuals.

He divided them into two classes solely on a basis of the physical peculiarities described by Kretschmer; 59 were of the "pyknic" and 41 of the "schizaffinic" type.

To the Rorschach test they gave in 87 *per cent.* a reaction definitely corresponding to the physical type; 6 gave definite evidence of a temperament not corresponding to the typical known varieties, while 7 were indefinite in their mode of reaction. In the "pyknic" cases the correspondence was even closer, 55 of the 59 showing the cyclothymic temperament—that is, 93 *per cent.*

The author discusses in considerable detail the exact method of doing the test and evaluating its data, and the paper thus gives useful assistance to those who use the method, in showing exactly how it is worked for the diagnosis of the temperament under investigation.

(3) This paper was the subject of a lecture given by Dr. Rorschach shortly before his death, and was published thereafter by Oberholzer, who had made the test and analysed the patient. The results of the test were evaluated by Rorschach, and Oberholzer remarks that after nine months' analysis his own estimate of the character and personality of the patient coincided with the "blind diagnosis" arrived at by Rorschach on a basis of the test material alone.

Their object in this case was to make a detailed examination, in a single case, of the test answers, and correlate it with a more detailed psychological investigation, so as to show their fundamental correspondence, and in the hope of finding a theoretical basis for explaining the results obtained in the test. Rorschach's death prevented the completion of the work, but it was sufficiently elaborated to be worth publication.

The material is given at great length, and it is to be regarded rather as a stimulus to further work on these lines than as a final pronouncement. Rorschach has also introduced in it two new conceptions which were not contained in his book—those of the "common answers" and the "light and shade interpretations," which proved of importance in this case.

The similarity between the description of the patient given by Rorschach from the test, without seeing the patient, and that discovered by Oberholzer from analysis is certainly remarkable. Yet in reading the data on which Rorschach's conclusions were based one cannot but feel that he either made lucky guesses, rather in the mode of the fortune-teller, or else that his extensive experience of the test combined with great intuition gave him a skill in interpreting the data which few could attain. If the latter be the case, the test deserves to be used extensively and the experience is worth gaining.

M. R. BARKAS.

4. Treatment.

On the Utilization of Twilight Sleep Produced by Somnifen in Schizophrenics for Therapeutic Purposes [Über die therapeutische Anwendung der "Dauernarkose" mittels Somnifen bei Schizophrenen]. (Zeitschr für die ges. Neur. und Psychiat., 1922.) Kläsi, Jakob.

The author was inspired by work done in the pharmacological institute to utilize somnifen for producing twilight sleep in mental patients. This drug is an aqueous solution of a combination of diethylamine with di-ethyl dipropenyl barbituric acid. The hypnotics of the barbituric acid series form with diethylamine soluble compounds which are quickly absorbed and excreted, and are therefore more effective and less toxic than the usual hypnotics of this series. These diethylamine compounds can be injected intramuscularly or intravenously, and are therefore useful for obtaining a rapid effect. The usual preparation of somnifen, made by Hoffman-La Roche, is in the form of 2 c.c. ampoules, the dose being one or two ampoules. It is safe and has no cumulative effect, and can be given so as to produce almost continuous sleep for several days without ill-effect. It has no injurious action on the heart or lungs. It had previously been found useful in delirium tremens and in tetanus.

The author describes in great detail the use of this preparation in a series of schizophrenics in an agitated state, who were single-room or observation cases in whom all other attempts at sedative treatment by baths, drugs, etc., had failed. In between a third and a quarter of his 26 cases, in spite of their unfavourable nature, there was a sufficient improvement for them to be sent home or removed to quiet working wards. In 8 cases it had no effect, but these were already demented. Men did not react to it (3 of the 26), as safe doses did not produce sleep. Three of the women were already physically ill and died early in the treatment, one an emaciated exhausted case, one with chronic nephritis, one of sinus thrombosis, and in these the treatment had not continued long enough to effect the *post-mortem* findings.

Contra-indications to the treatment are marasmus, heart weakness, and kidney disease. It is specially suited for states of anxiety and agitation, acute hallucinatory states, and negativistic cases with ideas of reference. In the latter the relation to the environment is markedly improved, and psychotherapy and work therapy become applicable with good results.

The treatment is given as follows: First $\frac{1}{4}$ gr. morphine and $\frac{1}{16}$ hyoscine are given, and in about half an hour, when this has produced some sedative effect, two ampoules of somnifen either intravenously or into the subcutaneous fat or muscle. If the injections are too superficial small areas of necrosis are apt to form. The morphine and hyoscine are chiefly to avoid excitement and vomiting, which occurs in excited patients as in chloroform or ether anæsthesia.

This first injection usually produces a sleep lasting 6 to 8 hours, after which one ampoule, or even a half, will continue the sleep for another similar period. Usually one ampoule night and morning will be sufficient to keep the patient in a twilight sleep state which can be prolonged for 6 to 7 days. During this time the sleep is like that of encephalitis lethargica—the patients can be roused to take nourishment or pass excreta, and drop off again when left quiet. There is usually some difficulty in swallowing, and liquid nourishment only should be given. Retention of urine must be guarded against, and in a few cases catheterization was needed. If the above dosage is not enough, the ampoule doses should be given at shorter intervals, rather than giving larger doses. Digitalis may be needed if the pulse becomes weak. There are disturbances of co-ordination, so that patients must be watched, kept in bed on the floor or in box beds. Plenty of fluid must be given, and they must be kept warm. The treatment should be stopped during menstruation or if vomiting occurs.

The good results obtained are considered to be partly due to the analgesic effects, which remove any hallucinatory basis for the agitation, and partly to the helplessness of the patient, which acts as physical illness often does, improving the relation of the patient to his environment. After a course of treatment other therapeutic measures become applicable—work, conversation, etc. In some cases a partial improvement after one course of treatment became a complete recovery, leading to discharge after a second or third course.

M. R. BARKAS.

Hæmodynamic Effects of Somnifen in Psychoses [*Hämodynamische Wirkungen des Somnifens bei Psychosen*]. (*Zeitschr. für die ges. Neur. und Psychiat.*, March, 1924.) Hediger, S., and Kläsi, J.

The authors begin by quoting various writers who have dealt with the effects of mental and emotional changes upon the circulation, such as Klemperer, who found a rise of blood-pressure comparable to that occurring when actual work is performed was also produced by a hypnotic suggestion that such work was being done; Bickel used the improved plethysmograph of Lehmann for such work on the psychoses, and found evidence of vascular spasm in states of chronic excitement mania and general paralysis, and concluded that this was the result of a lasting vaso-constrictor stimulus from the over-excited cortex of patients in a chronic condition of emotional tension.

Since Kläsi had been finding that the twilight sleep state produced by somnifen in such patients had lasting beneficial results, the authors investigated some cases under this treatment to discover its effects on the circulation. They used the method devised by Hediger of taking plethysmograph tracings under conditions which register the amount of the change of calibre of the vessels with pulsation, so that the size and form of the pulse-tracing gives information as to the volume of the peripheral circulation and the state of the vessels; the diastolic blood-pressure was measured by the oscillatory method,

while the systolic pressure was taken by palpation with the Riva-Rocci apparatus. The experimental error of the method was found to be about 5 mm. Hg.

The experiments were made on schizophrenics, six female cases being taken, and the observations were made in bed and about one hour after the last meal. Somnifen was given intravenously, so that the effects were produced quickly. In every case there was found to be a definite lowering of both systolic and diastolic blood-pressure, and a slowing of the pulse-rate. In most of the cases there was a marked increase of the volume of the pulse, which means an improved peripheral circulation, according to other experiments of Hediger; this did not occur in those cases who became agitated by the stimulus of the injection and failed to sleep, since this agitation produced a counteracting peripheral vaso-constriction. This improved peripheral circulation with somnifen must be due to the peripheral vaso-dilatation, since it is accompanied by a lowering of the general blood-pressure and slowing of the heart. The sedative effect of the drug upon the brain causes the peripheral vascular dilatation.

Most of the patients had been suffering from cold extremities, paræsthesiæ and hypochondriacal sensations, which formed part of their system of delusions, and the authors suggest that this may be the foundation of their ideas of influence by their environment, since their peculiarly sensitive vaso-motor system probably reacts over-readily to emotional stimuli and so produces the sensations underlying the delusions of reference. They suggest that the improved relation to the environment produced in such patients by the somnifen treatment may be due in part to the improvement in their vaso-motor balance, and not merely to mental factors, and that this experiment throws fresh light on the erroneous theory that schizophrenics are actually cut off from their environment and do not respond to its stimuli.

M. R. BARKAS.

The Twilight Sleep of Kläsi in Manic-Depressive Insanity [Die Dauernarkose von Kläsi bei manisch-depressiven Irrsein]. (Zeitschr. für die ges. Neur. und Psychiat., July, 1924.) Sacristan, J., and Pinto, J.

This article describes the use of somnifen in two cases of mania, in whom it gave such good results that the authors think them worth publishing apart from the large number of schizophrenics in whom it is now used as a routine by them.

The first patient was a married woman, æt. 40, who had had one previous attack twelve years before, lasting nine months. The present attack had begun in January, 1923, with a mild degree of depression, following domestic troubles. She had been admitted to the hospital at the end of February, and on March 10 she became excited, in a typical state of mania, which had lasted constantly in spite of sedatives, isolation, and continuous baths, up to June 19, when the somnifen treatment was begun. It was kept up for four days, during which she slept well at night and most of the day, and was drowsy, quiet and manageable the rest of the time. The treatment was then stopped on account of menstruation, and after a few days, during which she was quieter, she again became acutely excited. For unexplained reasons the treatment was not resumed until November, and her

state during that time is not described, but the implication is that she remained excited throughout.

In November another course of treatment was started and was continued for three days, after which it was stopped on account of vomiting. Two days later she was in a friendly hypomanic state, asked after her family, sat at table with the other patients, behaved normally, ate and slept well, and had complete insight into her illness and apologized for her previous conduct. After a short period she was discharged, and had remained well in February, 1924.

The second patient was a married woman, æt. 47, who had had an attack of depression in June, 1920, followed in March, 1921, by one of mania, lasting twelve months before she was discharged from hospital. She again became maniacal in October, 1922, when she came under the care of the authors. Up to November, 1923, she continued to have manic attacks at frequent intervals, over which she was depressed in the lucid periods between them. As these were increasing in frequency a course of somnifen was started on November 30, and continued until December 9, when she slept soundly without an injection and woke in a quite normal mental state. During the treatment she was confused and mildly depressed, and showed some degree of negativism, echolalia and verbigeration.

She remained normal until January 4, 1924, when a slight degree of hypomania appeared, and on January 7 another somnifen course was started, lasting until the 15th, since when she had remained normal until February 2, the time of writing the paper.

The authors emphasize that in these cases the somnifen treatment acts directly by anæsthetising the brain and bringing recovery by breaking the vicious circle of motor activity and emotional stress, without needing the after-treatment of re-education and occupation required in schizophrenics; that it can abort an attack if used at an early stage; and that it has no ill-effects either during its application or afterwards. They are so well pleased with the results in these two cases that they intend to use it as a routine in all cases of mania for the future.

M. R. BARKAS.

Non-specific Stimulation Therapy in Tabes Dorsalis. (Arch. of Neur. and Psychiat., July, 1924.) Ahlswede, E. H.

The therapy of tabes dorsalis and progressive paralysis depends essentially on a careful balance between specific and non-specific measures, while particular stress must be laid on an extreme exploitation of the defensive reactivity of the body in general. Non-specific stimulation as induced by artificial malaria infection has many great objections, and it is claimed that the introduction of foreign bodies (proteins) represents a more practical and effective method for obtaining the desired maximum stimulation of the defensive forces of the system. With decided benefit in the treatment of degenerative disturbances of the central nervous system Weygandt and Fischer employed a product consisting of nucleo-proteins and albuminoid substances, provoking a strong fever reaction during their administration. The author contends that increasing and regulated doses of albumen-milk solution injected into the buttock produce a suitable biological reaction, which may be controlled by regular examination of the blood in respect to an increase in the red and white cells, hæmoglobin content, and sinking velocity of the red cells.

As soon as the non-specific stimulation has taken effect and a definite clinical reaction has occurred, it is in most cases advisable

to begin with specific measures. Arsenical and mercuric salts are contra-indicated as the specific agent, and better results, with less bodily disturbance, are obtained from bismuth compounds combined with an organic iodine compound. It is found that this has additional non-specific stimulating qualities. A. WILSON.

5. Mental Hygiene.

The Need for Scientific Study of Delinquent and Problem Children and Provision for an Adequate Mental Hygiene Programme in the Schools. (*Mental Hygiene*, April, 1924.) McCord, C. P.

The career of a juvenile delinquent naturally falls into three periods—pre-institutional, institutional and post-institutional, during each of which different agencies have to deal with the case. Investigation of conduct disorders in the first period should be in the hands of physicians experienced in psychiatric work with juvenile offenders, for as long as probationary and reform work remains in the hands of interested idealists the incidence of crime and delinquency will remain stationary. Moreover, the efforts of parent, teacher, social worker, children's court official, psychologist and psychiatrist should be co-operated by some sort of clinic. The problem is made all the more difficult at present by the antagonism of the legal profession, and complete physical, neurological and mental examination would in some cases reveal masked epilepsy, post-lethargic encephalitic psychoses or mental defect, necessitating an entirely different form of institutional care.

After the juvenile delinquent has reached the institution he has a right to proper physical care, diversified training, social activities, sports and recreations. Of particular importance is the neuro-psychiatric aspect, for only when the delinquent has been carefully studied in relation to his home life and neighbourhood, family life, religious training, recreational and school opportunities, the emotional side of his personality and the various conflicts which may be going on within his instinctive life, are we in a position to make definite recommendations which may benefit or reform his conduct abnormalities. They must be dealt with as instinctive beings, and wholesome vehicles provided for the sublimation of their various instinctive trends.

Comparatively few agencies are dealing with the problems of post-institutional life. Agencies which attempt to deal with the delinquent in this period and seek to tide him over this crucial time should be in close and understanding relationship with the institution, and have available the results of the study which, it is insisted, should be made during the all too short period of institutional supervision.

Many institutions and social welfare centres could be dispensed with if mental hygiene were made a matter of more profound study in the public schools, if the education law regarding part-time schools were in some respects modified, and more scientific attention devoted to vocational training. A. WILSON.

Part IV.—Notes and News.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE usual Quarterly Meeting of the Association was held within the Royal College of Physicians, Queen Street, Edinburgh, on Thursday, February 19, 1925, at 2.30 p.m., Dr. M. J. Nolan, President, in the Chair. The Council and Committees met earlier on the same day.

MINUTES.

Minutes of the previous meeting, having already appeared in the JOURNAL, were taken as read and approved and signed by the Chairman.

OBITUARY.

THE PRESIDENT then expressed the deep sense of loss the Association had sustained in the demise of Dr. John Fraser, Dr. W. A. Parker, Dr. R. G. Rows, and Dr. C. Molesworth Tuke. He felt that some of the members present would desire to give full expression of their appreciation of the merits of these old colleagues.

The late Dr. John Fraser.

Prof. G. M. ROBERTSON, referring to the death of Dr. John Fraser, said that the Association had lost in him an honorary member, but the Scottish Division had lost an old friend whose memory would ever remain dear. Dr. Fraser as a student had gained no less than nine class medals, and graduated with first-class honours. He (the speaker) was told by the late Sir John Batty Tuke that he never met any person who could get up a subject in so short a period of time as Dr. Fraser. After graduation he received that blue riband of a medical student's career, an appointment as Resident in the Royal Infirmary. After filling that post he became *locum tenens* to the Perth District Asylum at Murthly under Prof. W. C. McIntosh. It was the interest he found in the duties of that position which had led him to select the treatment of mental diseases as his special career in life. He was first appointed an Assistant Medical Officer at the Fife and Kinross District Asylum at Springfield, and subsequently succeeded Sir John Batty Tuke as Medical Superintendent. He was appointed Deputy Commissioner in 1877, and acted as such for 18 years. He threw himself heart and soul into the duties of this post, and the experience which he gained in it made a lasting impression upon him. He came to know his Scotland thoroughly in all her moods, for he had hair-breadth escapes by flood and field in his many tours, and in his voyagings to the islands. He told him (the speaker) that he could not be placed in any part of Scotland without recognizing where he was. Not only did he know the country but he knew the people. He made friends wherever he went among the medical officers and inspectors of poor. In 1895 he was appointed a Commissioner, retiring in 1910, when he was presented with his portrait, painted by Mr. Fiddes Watt, by his numerous friends. His work as Commissioner was too well known to need any description. He was interested in all the movements in which they were interested. He sympathized with them in all their difficulties and responsibilities. There never was such a man who filled a post who had less of the cold official about him or more of the warm-hearted human being. He gave them suggestions, he gave them advice, and he sometimes reproved them in a kindly, fatherly way. They did whatever he asked them to do, because he was transparently honest and single-minded, and their friend. They would never forget his memory.

The late Dr. W. A. Parker.

DR. MARR, in paying a tribute to the memory of Dr. William Arnot Parker, said that although Dr. Parker did not take a very prominent part in the deliberations of the Association, they all knew he took a very sincere and general interest in the work of the Scottish Division.

[For the rest of Dr. Marr's remarks see obituary notices.]

The late Dr. R. G. Rows.

Dr. BOND said that there was yet the name of another of their members to be mentioned, whose death they would all deplore. He referred to the late Dr. R. G. Rows. They all knew his work in the Association. They had read his writings, which had been many, and they had also had the advantage of listening to him on frequent occasions at their meetings. By listening to him they knew the force and capacity of his teaching powers, which had been also exemplified to a very great degree while Dr. Rows was Officer-in-Charge of the "Moss-Side" War Hospital at Maghull, Liverpool. It was there that he had organized with his colleagues a set of instructional courses which would be remembered by many members of the Association who had attended those lectures in small batches, and the influence of that teaching they all knew had been very great in the successful treatment, not only of mental conditions arising in soldiers during the war, but in the development of similar treatment for civilians. He (Dr. Bond) was sure they were all glad to remember that the good work he did was to some extent recognized, in that he had conferred upon him the C.B.E., and that the University of Manchester had conferred on him the honorary degree of Doctor in Science. They deplored his death, and their sympathies extended to his father, and to Dr. Orr, who had planned with him important developments, not only at Prestwich, but in conjunction with the neighbouring university.

The late Dr. C. Molesworth Tuke.

Dr. G. W. SMITH, in paying a tribute to the memory of the late Dr. Tuke, said that he had been associated with him for four years at Chiswick House, and they had lost one remarkable for his kindness and his charm of manner. Dr. Tuke was one of their oldest members, and had always taken a particular pride and very deep interest in the success of the Association. Another striking thing about him had been his kindly personality and his genial good humour. He was a good open-air sportsman, a shot, a fisherman, and more than all, a cricketer. It was some comfort to know that he had hardly realized that he was so acutely ill as he was during the last six months or so of his life. A wide circle of friends regret his death.

Members present signified their deep regret by rising in their places.

ELECTION OF MEMBERS.

The following were unanimously elected as Ordinary Members of the Association:

LANDERS, JOHN JOSEPH, M.B., B.Ch.Camb., D.P.H., Medical Officer, H.M. Boys' Prison, Wandsworth.

Proposed by Drs. R. Fitzroy Jarrett, R. Worth, and G. Warwick Smith.

MCGLASHAN, WILLIAM REID, M.A., M.B., Ch.B.Aberd., D.P.M., Deputy Medical Superintendent, County Mental Hospital, Mickleover, Derby.

Proposed by Drs. G. N. Bartlett, F. M. Rodgers, and John Bain.

MACNIVEN, ANGUS, M.B., Ch.B.Glasg., Resident Assistant Physician, Royal Mental Hospital, Gartnavel, Glasgow.

Proposed by Drs. D. K. Henderson, W. M. Buchanan, and Aidan G. W. Thomson.

DEMONSTRATION OF THE PSYCHO-GALVANIC REACTION.

Dr. DAVID SLIGHT, Lecturer, Psychological Department, University of Edinburgh, during the course of his demonstration said that the psycho-galvanic reaction was an example of how a scientific discovery might be made and then left buried in books. Apparently that phenomenon had been discovered about 1890 by two observers, Féré and Tarchanoff, working from two different aspects. Féré had found that when a current was passed through the body and an emotion stimulated, there was an apparent diminution in resistance.

Dr. Slight then proceeded to demonstrate Féré's method, and explained on a sketch the working of the apparatus.

He continued by saying it was agreed by all that the reflex was due to a change in the skin. He (the speaker) had proved that to his own satisfaction recently. He had passed a needle into his forearm and another into his leg and had passed the current through the needles. Under those conditions no reflex had been elicited, no matter what strength of stimuli had been applied. He had proved it

in another way by making cuts in the skin of the arm and leg and insulating them with paraffin. The current then passed through the body by way of the cut surfaces. Again he was never able to elicit any response whatever, no matter how strong the stimuli were. So that they could take it that the response was due to some change in the skin. What that change was no one seemed to know very definitely. It had been suggested that it might be a change in sweat secretion. That was a theory which had been proved and disproved by various observers. He thought that the general conclusion was that if the secretion of sweat did play some part, that was not the sole factor. He mentioned that the late Prof. Waller secured some evidence that sweat secretion did not take the whole part in the production of reflex by injecting atropine, and also by applying belladonna plasters. Another very striking example was the case Dr. Golla, of the Maudsley Hospital, had recorded of a patient with hyperidrosis. In that case there was an obvious layer of sweat, and Dr. Golla found the reflex present. In such a case it seemed very doubtful that any small addition of sweat would make any difference. The other possibility was that there might be a change in the blood-flow. This again seemed to have been as the sole factor generally disproved. Various observers had found the reflex still present even when the limb was exsanguinated. There was no question that emotional stimuli did cause a fall in resistance. Dr. Golla, in a recent communication to him (the speaker), seemed to believe that the change was one transmitted through the sympathetic nerve system. The late Prof. Waller had suggested much the same thing, *i.e.*, that the fall in resistance had something to do with the trophic nerves. There was some change transmitted, probably through the sympathetic system to the skin.

Dr. Slight then proceeded to demonstrate with the galvanometer, during the course of which he pointed out that one point which differentiated the real emotional response from any change due to movement was the fact that there was a latent period. If he deliberately moved his hands, the movement of the light followed immediately on the movement of his hands, but in the psycho-galvanic reflex a period of two or three seconds elapsed before the light moved.

Continuing, Dr. Slight said that he was sorry that demonstrations were rarely convincing, but he hoped he had demonstrated to those present that there was a definite response. It was a physiological change. They could not explain it away by saying it was due to movements of the electrodes, for the simple reason that any change which was due to movement of the hands was followed immediately by movement of the light. There was no latent period in that case.

In conclusion he would summarize his remarks by commenting briefly on the way in which the reflex might be useful in mental work. When investigating problems of emotion, they knew the difficulties of registering and recording any changes which occurred. For example, changes in the respiratory system, circulatory system, and so on, were all accompanied by great difficulties in registration, and various observers gave most conflicting results. The psycho-galvanic reaction was one change accompanying the emotions that was definite. There was no evidence up to the present that there was the least possibility of controlling the response by an effort of will, and in it he thought they had a very valuable means of investigating problems of emotion. They could use it, for example, in investigating the fundamental problems of emotion. In psychiatric work they could use it when conducting a mental analysis.

Another point was the problem as to whether a disease was of a psychic or organic nature. In organic disease, such as dementia praecox, they would find the reflex diminished. He pointed out that Dr. Golla, working by the same means, had found that the hysteric patient gave very diminished responses. Hysteria had been regarded by many as essentially of psychological origin, and yet that reflex was diminished, which would rather tend to show that hysteria had an organic basis.

Another point was the question of subconscious emotions. In analysing the patient, the sceptic asked, "How do you know there is an emotion or not?" They might say the patient did not know about it because he was unconscious. Now they had a definite means of proof. If there was such a thing as an unconscious emotion, then they had now a definite means of recording it. He was sorry that the demonstration had not been as successful as he should have liked it to have been.

Dr. BOND said that this demonstration had been very interesting to him, and

he was glad to see that work going on. He had seen when visiting the psychological laboratory the work that was being done in Cambridge, and it did seem to him that they had, when properly developed, a most powerful instrument for differential diagnosis. Dr. Slight did not tell them whether he was applying this to actual clinical cases. That is what he (Dr. Bond) would like to see systematically tried. He knew that Dr. Golla was working on the matter, and that he had scented a large number of fallacies, but he (the speaker) thought he had interpreted him rightly when he said that Dr. Golla was loath to say much about it until he had investigated the matter more closely and had found an opportunity of checking the results. Dr. Petrie (who was present), perhaps, would tell them to what extent it could be used clinically for diagnosis. He did not know whether it was put forward seriously or as a joke, and Dr. Slight had not mentioned it, but there had been a suggestion that in this apparatus they had, perhaps, a powerful means of criminal investigation.

Dr. A. A. W. PETRIE said he was afraid that what he knew about it was very much from superficial observation, but he did know that Dr. Golla thought it was now desirable to investigate a considerable number of cases which had a very definite diagnosis, and he was distributing a portable form of this apparatus to certain London County Mental Hospitals. When a considerable number of cases had been investigated Dr. Golla would be prepared to speak more definitely. The objection to using the early type of case such as they had at the Maudsley Hospital was the difficulty in giving a definite diagnosis at that stage of the disease. The lines on which Dr. Golla had always found the reaction so useful had been in war cases—the differentiation of hysteria from a genuine hyper-emotional response. He did not quite follow Dr. Slight's deduction that because there was a diminished response in dementia præcox, which was possibly an organic disease, and because there was also a diminished response in hysteria, that hysteria was necessarily an organic disease. The difference between anxiety neurosis and hysteria was that in the former there was a really undue sensitiveness, whereas in the latter there was merely an expression very obviously external of an emotion which they did not feel. He would like to hear other people's views on that point. The method had been used in a number of cases which were being analysed, and it sometimes did enable the observer to detect an emotional response which the patient either hid, or from some other cause was not apparent.

Dr. IAN D. SUTTIE remarked that he could not see what use the reaction would be in criminal investigation, because a criminal knew himself to be accused of something, and even if he was innocent, he would have an emotional reaction whenever a word was given to him or a stimulus applied which recalled to his consciousness the crime of which he was accused. This reaction only detected the presence of an emotion. It did not tell them whether there was an emotion of guilt, of anger, or of fear; it only detected the presence of an emotion, and an innocent person would give an emotional reaction in very much the same way as a guilty person. The real difficulty was to interpret the emotional reaction; it was far easier to detect an emotion than to interpret its cause.

The PRESIDENT said he would rejoice to see any attempt made to bring the matter into clinical operation. That day's demonstration appeared to him to have the drawbacks the last speaker had particularly pointed out, but he still thought it was on the right lines, and when it was developed in the proper way it might be of use to them all. Even that afternoon, watching closely the demonstration, they could see a great many points that might prevent a correct response. The young lad was sitting in anticipation of the stimulus, and his mind was concentrated on it, which could not be considered normal conditions. He thought that if the same thing could be carried out without preparation on normal and abnormal people the results would be interesting. For instance, if the stimulus could be applied without the men knowing it in a hundred normal cases and then in a hundred cases of insanity they might obtain some concrete evidence. It seemed to him to be rather dangerous to base any reasoned opinion on the results at present, and least of all in criminal investigation. The apparatus they had seen that day, of course, was pretty much in the form of the family parrot who will not talk when they wanted it. But he still felt that there was a future before that investigation, and to those who had to work among the insane it might be of material service some day. They were all very much indebted to Dr. Slight for giving them the demonstration.

Dr. SLIGHT, in reply, said that he did not think they could expect very much success with the reaction in the case of criminals, because if they put a series of people in a row and investigated them one by one, say by applying a list of words relating to the incident, he was inclined to believe that they would obtain responses from others than the criminal from the fear that they were being suspected.

At the President's suggestion he would mention that it was rather interesting to know that when a person was reciting dramatic poetry and exhibiting all the signs of emotion there was no change recorded by the galvanometer, so that apparently when actors portrayed emotion they did not feel any real emotion. A hysterical person is in much the same position. He might give the outward signs of emotion, for which there was no real physical basis. Dr. Petrie had expressed doubt that hysteria was an organic disease. It was not organic in so far as there was any definite pathological change, but it was organic in so far as such people were not capable of giving adequate organic response, even when they were not acting spontaneously. When hysterics were under examination and exhibited the phenomena of weeping and crying, it was a false emotion. But apart from that, when stimuli were applied which should cause emotion in any normal person, the hysterics did not give an adequate emotional response even then, so that apparently their affective mechanism was deficient.

It had been suggested that they should try and separate different types of people, but it was very difficult to obtain their subjects under comparable conditions. It was also difficult to apply standard stimuli. He had found that one's resistance varied, and corresponding with the change in resistance they found that there was also a change in response to the same stimulus.

Still, he hoped they might in the future obtain some useful and valuable information from using that method. (Applause.)

PAPERS.

"The Boarding-Out System," by Dr. GEORGE GIBSON, D.S.O., Deputy Commissioner, General Board of Control for Scotland (see p. 253).

THE PRESIDENT said he would like to convey their appreciation to Dr. Gibson of the excellent paper he had just given them on the "boarding-out" system. He would very much like to hear the views of other members who were interested in the subject, but he was afraid the question was too large to enter into that night. There had been a good deal of agitation about this subject many years ago. His late colleague (Dr. Conolly Norman) was most active in his efforts to introduce the system into Ireland, but there were circumstances which he (the President) considered were unfavourable to its adoption. Events showed, he thought, that he had been right on that point. He thought that Dr. Gibson's paper was worthy of full discussion at a later meeting.

"Results of Treatment of General Paralysis by Malaria," by Dr. W. M. McALISTER, Assistant Physician, Royal Hospital, Morningside, Edinburgh (see p. 236).

Dr. HENDERSON said he felt he ought to express his appreciation of Dr. McAlister's paper. He (the speaker) thought he had expressed the situation in a very conservative way, and that he had really brought the question of malarial treatment of paralysis down to a much better basis than they had generally been allowed to believe. He was glad to know Dr. McAlister considered that in this country the results they had accomplished did not at all compare with what they had been led to expect by continental observers or observers in America. It had been difficult to decide as to whether one should start this method of treatment or not, but after hearing Dr. McAlister's paper he was more inclined to leave it alone than to go on with it. He did not think there had been anything done in this country so far that gave them any security in treating cases of general paralysis with malaria. He would emphasize a paper recently published by Drs. MacBryde and Templeton on a series of fifteen cases. These observers had three deaths from acute malarial intoxication, and they emphasized the fact that the application of malarial treatment resulted in the patients so treated suffering from vomiting and some of them from incontinence of urine, and so on; so that the results altogether, he thought, must continue to be accepted on the very conservative basis that Dr. McAlister had put forward. He would like to express his high appreciation of the paper. (Applause.)

Dr. BOND remarked that he endorsed what had just been said, and expressed his appreciation also of Dr. McAlister's paper—such of it as he had been in time to hear. He did not deduce from what he heard that Dr. McAlister at all adopted a pessimistic attitude towards the treatment of general paralysis by the method under discussion. He might say that the attitude of his colleagues on the Board of Control in England towards it had been one of friendly and interested watchfulness, with a great desire to be kept closely in touch with what was going on in the different hospitals in this matter, and for themselves not to express any great pæans or remarks in its favour, nor unduly influence those who were not carrying out this treatment to do so. Just lately they (the Commissioners) had been so impressed with the results in certain places, and the time that the patients remained at home without relapses, that they were beginning now to wonder whether the time had not come to say to other places, "What are the reasons why you are not in favour of this method?" Fortunately for them they had had the advantage of being able to obtain the help of Col. James, of the Ministry of Health, whose knowledge of malaria was very great, and who had been able to foresee and therefore prevent mishaps and trouble by most prudent advice. He (Col. James) was most emphatic upon the desirability, for several reasons, of the inoculation being derived from the mosquito. So much interested was he that he desired to establish a couple of small rooms carefully fitted up, in two mental hospitals, one a London one (Horton), and the other one, he thought most possibly, in Lancashire, where a supply of mosquitoes would always be in readiness. Col. James wished to use those two laboratories as the centres of supply for the Kingdom. He hoped members would not cease that method of treatment without exploring it to the utmost, and even if no complete cures were obtained, still, if in a big percentage, like 25 or more, they could produce a quasi-convalescence, they surely would have made a good step. (Applause.)

Dr. DANIEL said he had had a little experience of this method in Hanwell, but the treatment had to cease because the hospital was not adapted for the purpose. He had found the treatment rather more hopeful than what Dr. McAlister had led them to believe. The treatment was not without danger, but the chances of apparent recovery seemed to be good. The exact figures had not been published yet, but he had no doubt they would be before long. He thought the treatment not only with malaria but also with anti-syphilitic remedies was to be recommended.

Dr. BOND added to what he had said previously that he did not know whether it had been tried in Scotland, but in England several mental hospitals had tried malarial infection for mental disorders other than general paralysis, in particular certain phases of dementia præcox, with an idea that the improvement which follows sometimes with a febrile attack may be produced by that method.

Dr. C. A. CRICHLAW said that at Bangour they were indebted to Dr. McAlister for sending them some cases upon which to start experiments. They had inoculated six cases, and of those six one man had been discharged apparently cured, and the last report they had heard of him was that he was working as a dock labourer at Leith. Some thirty other cases were inoculated from a fresh strain. Four of these were women. The cases which improved most were the male cases. In many of the female cases the results were very disappointing. On the whole he thought that they had to take a very conservative view of the treatment.

Dr. DOUGLAS McRAE said he much admired the attitude Dr. McAlister had taken up in this matter. He thought they ought to go very, very cautiously, and a great deal more work ought to be done before they came to conclusions. Many cases ran a very prolonged course with little deterioration in the mental state. It was quite possible that only one-tenth of the cases of general paralysis were admitted into institutions at all. He mentioned that because it was in that very room, when he read a paper on general paralysis, that Prof. Wyllie came up to him and said, "It is a very interesting paper; all your remarks are very interesting, but has it ever occurred to you that I as a physician outside see far more general paralysis than Dr. Clouston ever sees?" Another thing he would like to mention was that the type of cases admitted was changing. He did not think the cases progressed so rapidly as they used to do. They came into mental hospitals, some of them apparently very advanced, and without any treatment or experimentation of any kind cleared up remarkably, and remained for several

years, and some for many years, more or less semi-sane members of the asylum population.

Dr. MACPHAIL said that there were just two points about Dr. McAlister's most interesting paper upon which he should like to say a word. One interesting point was that in Dr. McAlister's experience there was much more benefit on the mental side than on the physical side. Now in the case he had to do with (Dr. McAlister knew the case) there had been no mental improvement, but there was a distinct physical improvement in many respects. That man had had malarial treatment some seven or eight months ago. Before then he had two seizures, but none since, and in many respects he was better, but there had been no mental improvement. That was one point. The other point was Dr. McAlister's reference to syphilis and malaria. When he (the speaker) was a student one of the very definite lines of treatment for syphilis was a course of quinine, particularly as regards the Dublin School of Medicine. Syphilitic cases which had had malaria abroad were told when they came home to go on with their anti-syphilitic treatment and to drop the malarial treatment. As a result they got very much worse, and although they had no malaria at the time, they were advised to go on with the quinine treatment as well. He thought the point Dr. McAlister made about malaria and syphilis was one which should not be overlooked.

Dr. WORTH raised a question whether, if the successful treatment was due to the excessive high temperature, there was not some other method which could be adopted to produce high temperatures without giving them disease.

Dr. T. C. MACKENZIE said it had occurred to him that it would be interesting, in a series of cases of general paralysis, to have an experiment made along parallel lines. Some of them remembered that when Dr. Bruce introduced a method of producing high pyrexia in cases of acute mental disorder, in quite a number of cases so treated mental improvement followed. He also thought that there was something in the suggestion that it might be possible to devise some other means than infection by malaria of producing high temperature, and not involving the risk of infecting the patient with a new disease. In any case if it were possible to take one series and inject malaria, and take another series and treat them by Dr. Bruce's method, it would be interesting to see if there were any difference in the results.

The PRESIDENT remarked that Dr. McAlister's paper appealed to him in a particular manner, as he considered that his attitude was one that should be more generally adopted than it had been. However, if they did succeed in producing long remissions they would certainly have accomplished a great deal, and considering the disease was in any case a hopeless one he thought they would be justified in using the malarial treatment. Another point he (the speaker) wished to emphasize was that he had seen a large number of ex-service men who had general paralysis and who had had malaria.

Dr. McALISTER, in reply, said he did not want his attitude to be misunderstood. He was by no means decrying the experiment provided it was conducted under proper precautions. His paper had been intended as a warning against the indiscriminate use of old strains, which, so far as he was able to gather, produce highly toxic results, and in many cases, if the results were fully known, produced death. He thought it was unfortunate so many people who carried out the treatment did not publish their results in a candid and straightforward way. He heard private reports of cases so treated regarding which deaths were by no means rare. Those things never appeared in print: only the good results were published, and that he submitted was an unscientific way of conducting any experiment. With regard to the use of substances that would produce a temperature, he had done a good deal of work on those lines, but the results in cases of general paralysis were utterly negligible, and not worth the time and trouble the treatment takes. With regard to malaria, he felt it was an experiment they were not pushing on with sufficiently. Cases must be suitable ones, and more than that, they should endeavour to secure inoculation directly through malarial patients. The whole thing was in the realm of experiment, and it required not only time but a great deal of trouble before generalizations could be made. He was very grateful to think that his paper had provoked such an interesting discussion.

The meeting then terminated.

In the evening members dined informally at the North British Station Hotel.

THE MENTAL AFTER-CARE ASSOCIATION.

THE Annual Meeting of the Mental After-Care Association was held at the Clothworkers' Hall on Wednesday, March 18, at 3 p.m., the President, Sir Charles Wakefield, presiding.

The speakers included Sir Frederick Willis, Chairman of the Board of Control, Dr. Wolesey Lewis, Medical Superintendent of Maidstone Mental Hospital, and Lionel Faudel Phillips, Esq., Hon. Treasurer of Bridewell and Bethlem Royal Hospitals, and various members of the Council. There was a large attendance, and much interest evinced in the proceedings.

SIR CHARLES WAKEFIELD said there was no doubt that poor-law and local authorities generally were coming to realize that the services the Association could offer to patients discharged from mental hospitals had the particular value that such bodies were quick to appreciate—that they could save them money. That recognition was taking the form of increased subscriptions from local authorities, but it was a matter for regret that there had been a decline in subscriptions and donations from private sources. He felt sure that that was only a temporary condition, for it needed very little prompting to make kindly people realize the distress and uncertainty of those who were on the threshold of daily life again after a period of mental confusion.

DR. HENRY RAYNER moved the adoption of the annual report, and referred to the increase in the number of patients assisted by the Association, amounting to no less than 13 *per cent.*, and added that the success in dealing with those cases had been correspondingly increased. The unsatisfactory feature of the work was that while subscriptions had fallen off, there had been an excess of expenditure over receipts amounting in the past year to over £1,000. The Association was thus again threatened with an encroachment into its reserves, but against that gloomy outlook it was encouraging to have received from Sir Charles Wakefield a donation of £500 as the nucleus of a fund which would enable the Association to carry on what was a unique public service. (Cheers.) This was further supplemented by £10 from the Clothworkers' Company and £10 from Mr. L. H. Bolton, and a promise of £10 from Mr. L. G. Foster. Thus, however gloomy the report might appear to be, they felt confident that with Sir Charles Wakefield as President and the Prince of Wales as Patron, the future of the Association was assured.

SIR FREDERICK WILLIS seconded, and said it was recognized that the sort of work they were doing could not be done by official bodies, but he could not help feeling that they were only touching the fringe of the question. He thought that each county should have a local branch affiliated to the central London body, in order that mental cases throughout the country might have the advantage of the efficient care of that organization.

The report was adopted.

SIR MAURICE CRAIG, Hon. Treasurer, submitted the balance-sheet. He regretted the dwindling subscriptions, and said year by year they were seriously encroaching upon their capital, and were living to a great extent upon the generosity of benefactors of former years. In 1923 the expenditure exceeded the income by £803, and in 1924 the excess amounted to £1,163. That deficit would, of course, be considerably reduced by the generosity of their President. He thought the Association was too silent about what it was doing. The time had come when they should do something to show the public what the society had done for them during the last forty-five years, and get some recognition from them. One-third of the total receipts last year were contributions from patients and their friends, which in itself is a wonderful tribute to the way in which the work is appreciated by those for whom it is intended.

MR. LIONEL FAUDEL PHILLIPS, Treasurer of Bethlem and Bridewell Royal Hospitals, in seconding, advocated steps being taken to make the Association better known. The root of their trouble, however, went much deeper than that. Every illness known in this country commanded universal public sympathy—be it cancer, phthisis, or any kind of disease, save the one with which the Association dealt. The trouble was that their poor unhappy mentally sick were not appreciated and did not enjoy the sympathies of the great British public, and the only way to rouse such was by advertising in every possible way what the Association was doing. It was of good augury that the Prince of Wales had consented to become their Patron. The Royal Family were models of every-

thing charitable and good in this country, and the British public was still loyal and wise enough to appreciate the noble efforts every member of the Royal House exerted on behalf of illness and misfortune. He ventured to hope that the fact that the Prince of Wales had become their Patron would induce the public to look more kindly upon the work of the Association and to follow the lead his Royal Highness had given.

The accounts were adopted.

Dr. WOLSELEY LEWIS, in moving the re-election of officers, spoke of the untiring work of Miss Vickers, the Secretary, and the other members of the staff. He pointed out that the extension of the work with regard to the arrangements for visiting the homes of patients before discharge and reporting to the medical superintendents and keeping in touch after discharge was to his mind an enormous help to the medical superintendents and visiting committees, and enabled many patients to be discharged more quickly.

Dr. PERCY SMITH seconded, and also paid a tribute to Miss Vickers and her assistants.

A very hearty vote of thanks, on the motion of Mr. Faudel Phillips, was accorded to Sir Charles Wakefield for presiding and for his munificent gift, also to the Clothworkers for their hospitality in entertaining the large number present.

EDUCATIONAL NOTES.

London County Council.—The Maudsley Hospital, Denmark Hill, S.E. 5 (University of London).—Lectures and Practical Courses of Instruction for a Diploma of Psychological Medicine: VIIIth Course, 1925. Part II will commence on April 1.

(1) Eight lectures on the Psychoneuroses. By Bernard Hart, M.D., M.R.C.P. On Mondays at 3.30 p.m. and 5.30 p.m., commencing May 4, 1925.

(2) Eight lectures on Morbid Psychology. By Edward Mapother, M.D., M.R.C.P., F.R.C.S. On Tuesdays at 2.30 p.m. and 4.30 p.m., commencing April 7, 1925.

(3) Six lectures on the Pathology of Mental Diseases, including Brain Syphilis, its Symptomatology and Treatment. By Sir Frederick Mott, K.B.E., LL.D., M.D., F.R.C.P., F.R.S. On Tuesdays at 4.30 p.m., commencing May 5, 1925.

(4) Eight lectures on the Practical Aspect of Mental Deficiency. By F. O. Shrubbsall, M.D., F.R.C.P. On Wednesdays at 2.30 p.m., commencing April 1, 1925.

(5) Six demonstrations in Clinical Psychiatry. By Edward Mapother, M.D., M.R.C.P., F.R.C.S., Maudsley Hospital. On Wednesdays, at 2.30 p.m., commencing May 6, 1925.

(6) Twelve Clinical Demonstrations in Neurology. By Sir Frederick Mott, K.B.E., LL.D., M.D., F.R.C.P., F.R.S., and F. L. Golla, F.R.C.P. The first 5 Demonstrations will be given by Dr. Golla at the Hospital for Paralysis and Epilepsy, Maida Vale, on Thursdays at 2.30 p.m., commencing April 2, 1925. An announcement will be made later regarding the remaining Demonstrations to be given by Sir Frederick Mott, at the Camberwell Infirmary.

(7) Six lectures on Crime and Insanity. By W. C. Sullivan, M.D. On Wednesdays at 4.30 p.m., commencing at the end of May. Date to be announced later.

(8) Lectures on the Legal Relationships of Insanity and Treatment. By C. Hubert Bond, D.Sc., M.D., F.R.C.P. On dates to be announced later.

In addition to the special lectures and demonstrations of the above course, there is opportunity for clinical experience and instruction available at the Hospital. In particular there are a limited number of appointments available as clinical assistants; service in this capacity (either whole-time or part-time) is recognized by the various examining bodies as constituting the clinical experience required by the regulations for the Diploma.

Fees: For whole of Part II, £10 10s.; for a single series of Lectures, £2 2s.

Inquiries as to Lectures, etc., should be addressed to "The Director of the Pathological Laboratory," Maudsley Hospital, Denmark Hill, London, S.E. 5.

The Fellowship of Medicine, 1, Wimpole Street, W. 1, will collect fees from, and issue admission tickets to, medical men intending to take the course who are introduced by the Fellowship.

Tavistock Clinic for Functional Nerve Cases, 51, Tavistock Square, W.C. 1.—A course of ten lectures on the Treatment of Functional Nerve Disease will be given at the Tavistock Clinic on Tuesdays, beginning May 5, 1925, at 5.30 p.m.

H. Crichton-Miller, M.A., M.D., May 5, Psycho-physical Interaction; June 2, Freud; June 9, Adler and Jung; June 16, Regression.

S. Roodhouse Gloyne, M.D.; May 12, Toxæmia; May 19, Toxæmia (contd.); May 26, The Endocrine Glands.

J. R. Rees, M.A., M.D.; June 23, Physical Methods of Treatment; June 30, Analytical Methods; July 7, Analytical Methods (contd.).

Fee for the course: Medical practitioners, £2 2s.; medical students, £1 1s. Single tickets, 5s. Tickets for the course to be obtained in advance from the Hon. Lecture Secretary at the Clinic.

The National Hospital for the Paralysed and Epileptic, Queen's Square, Bloomsbury, W.C. 1.—Syllabus of Post-Graduate Course, May 4 to June 26, 1925.

The Course will consist of the following subjects: (1) Out-patient Clinics, Mondays, Tuesdays, Thursdays and Fridays, 2 p.m.; (2) Clinical Lectures and Demonstrations, Mondays, Tuesdays, Thursdays and Fridays, 3.30 p.m.; (3) Lectures on the Anatomy and Physiology of the Nervous System (if sufficient applicants), Tuesdays and Thursdays, 12 noon; (4) Lectures on the Pathology of the Nervous System, Mondays, 12 noon; (5) Clinical Demonstrations on Methods of Examination (if sufficient applicants), Tuesdays and Fridays, 10 a.m.

For further information apply to J. G. GREENFIELD, *Dean of Medical School*.

THE MENTAL PATIENT AS HE FEELS HIMSELF.

I BELIEVE, from my own experience, and from what I have seen and heard of the experiences of other people who have suffered a mental or nervous breakdown, that there are two sets of signs which precede the illness. If the body is weaker than the mind, the body will give way first; but in every case there will be physical signs as well as mental signs of nervous failure. Obstinate constipation, exhaustion and bodily heat often precede insomnia and loss of memory; but too often the sufferer does not pay any attention to these symptoms, merely thinking that he must be a little bit run down, whereas long-continued worry, work, or lack of fresh air and proper nourishment may be telling desperately upon the individual at last.

In my own case the physical symptoms which I have described were present, especially the exhaustion and bodily heat, which I found almost unendurable. The mental symptoms only occurred upon the very eve of my losing touch with reality. I was able to do my literary work quite well, that very evening; and yet a strangely abnormal occurrence rather frightened me. I was translating *De Maupassant*—the story of the man who is on the threshold of insanity, and who, one night, finds himself lost in Paris, and goes mad with terror. The story did not affect me, as I do my work without letting it remain with me afterwards; but when I left my desk in the immense reading-room of the British Museum I was unable to find it again, or to remember where I had been sitting. Little did I think that the fate of the man in the story I had translated was to be mine also!

The borderland state, in which I then was, is a very strange one, in which reality and unreality are strangely mixed. I did not once think that anything was wrong with me, only that something was very wrong with other people. Phobias and delusions crowded in upon one. Above all, one's thoughts and dreams are real, and all else seems remote and artificial. Then, paradoxical as it may sound, there is a kind of rare sanity in insanity. For if sane, one is sensitive to impressions, one is doubly sensitive to them when intellectual checks and reasoning inhibitions are absent. The whole universe is, as it were, inverted, and instinct rules supreme; and one reacts very strongly to those who are about one—almost as if one could see into their very souls. Pagan people, of course, respect the insane, believing that they are living in another world; and many Christian people have a religious theory of insanity. To a certain extent I sympathize with this, though it would be obvious folly for me to decry the splendid services which medical science has rendered to humanity. Suffice it to say, therefore, that the insane mind is primitive and child-like, and subject to receive strong and direct impressions.

With regard to the treatment of the mentally afflicted, I think that before being certified a patient should be treated, and not sent to an asylum unless he is a bad case. It is terrible to send a young person to wake up in a lunatic asylum, to be branded for life for that which is often the fault of others, or a mere nervous disturbance which may be all over in ten days. That in itself is enough to cause a permanent deterioration of the brain. There should be certainly a half-way house between the asylum and a patient's own home.

In a letter to the *Nursing Mirror* last October I highly praised the mental nurse. I think, however, that she makes mistakes which could be remedied. With but a little effort of the imagination, she could place herself in her patient's place, and feel as he feels—lonely, terrified, weak, ashamed of his weakness, humiliated by the memory of his breakdown and the shock that it caused to others. She could soothe and cheer, be silent in the corridors at night—not leave him alone in the cold and dark, to get well or to get worse, or to die.

Suggestion, experiment or psycho-analysis is absolutely and obviously pernicious, for the mind is sick and defenceless, and too weak to be able to resist by reason, or right instinct.

A mental patient lacks will-power and self-confidence, and is bitterly ashamed of himself for being the reverse of what he was before. He is full of conflict, and cannot give plain and straightforward answers. His civilized nature is at war with his primitive instinct—especially is this so in the case of women, who often have or choose to repress many of their own wishes and ambitions.

Symbolism, too, plays a large part in the mental life of the patient, and many cultured and reserved people, when they are insane, say and do things which only a cultured and able attendant would understand. Food may, to a patient, represent life, or money; and it is not always easy to tell what a patient means; but once the symbolism is grasped by the mental expert, he will be able to reassure the patient, and change the current of his thoughts. In any case, he is bound to be morbid and very hypersensitive. Feeling inferior, he may develop a complex by which the instinct of self-preservation may, for example, be perverted temporarily, and so on.

The subject is, of course, one of vast interest; and as I stated here before, I have seen no cruelty in an asylum, save the legal one which denies a patient a chance to see or write to a friend, and leaves him at the mercy of one petitioner—usually the relative who rushed to have him put away, and who may be a stranger to the patient in everything but blood. I have had happy days in an asylum, and I think the world of my nurses, all of whom respected my reserves, and showed a human rather than professional interest in me, and who showed all their patients the respect and devotion due to the sick. And it is only this human interest which will obtain the response of a patient, for very often the "clever" nurse will make erroneous deductions from sick symptoms, since pathology is a very intricate subject indeed—even to the expert pathologist.

At least, I hope that he thinks so.

J. S. C.

THE TREATMENT OF RATE-AIDED PATIENTS AS VOLUNTARIES IN THE MENTAL HOSPITALS OF SCOTLAND.

THE following extracts from a memorial addressed to the Secretary of State for Scotland by the Board of Direction of the Crichton Royal Institution are of importance and general interest:

"The Institution is the only mental hospital in the country which publishes annual statistics of the results of treatment of the voluntaries, for purposes of comparison with those relating to the certificated patients, and this fact, and the foregoing data, as to the size and nature of its population, indicate that the Institution is specially in a position to furnish pertinent and important statistical information not otherwise available.

"The following tabular statement shows the results of treatment at the Institution for the 17 years 1908 to 1924 inclusive. (*N.B.*—The cases admitted and the cases discharged improved or unimproved include transfers respectively from and to other mental hospitals):

	Private voluntary.	Private certified.	Total private.	Rate-aided certified.	Total certified.
Cases admitted . . .	1,205	1,464	2,669	1,339	2,803
Cases recovered . . .	511	544	1,055	445	989
„ improved . . .	306	344	650	150	494
„ unimproved . . .	56	67	123	123	190
Percentage recovered . . .	42·4	37·15	39·52	33·23	35·28
„ improved . . .	25·28	23·49	24·35	11·20	17·62
„ recovered and im- proved . . .	67·8	60·65	63·88	44·43	52·90
„ unimproved . . .	4·64	4·57	4·60	9·18	6·77

“ It will be seen that the results of treatment are best among the private voluntary, less favourable among the private certificated, and worst among the rate-aided certificated group. As regards the private class, the results are better among the voluntary than among the certificated, for the reason that the former exhibit in larger proportion illnesses of less serious type and more recent duration. As regards the difference in the results of treatment among the private as compared with the rate-aided class, the significance of the figures will be realized more fully when it is stated that the rate-aided patients were sent direct from their homes in nearly all cases, and were treated under the same hospital conditions and arrangements as the private patients, whereas the great majority of the latter had been treated previously in nursing homes and private houses. There is good reason to believe—and this is an important point to remember in considering the statistics of treatment in mental hospitals—that it is the worse half of the nervous breakdowns in the community that have to be dealt with in mental hospitals. This certainly applies to private patients, and also to rate-aided patients in those asylums which serve populous centres provided with separate mental or observation wards. It is recognized that the more favourable results of mental hospital treatment among private as compared with city rate-aided patients may be accounted for to some extent by the difference in the previous mode of life and social environment of the two classes. This consideration is hardly applicable to the rate-aided patients from the healthy rural area of Dumfriesshire and Galloway, amongst whom, for the reasons above stated, it might have been expected that the results of treatment would have been even better than among the private class. As the above figures show, the contrary is the case. In order to visualize the desirable results that might ensue if rate-aided patients were permitted to come for treatment of their own accord to mental hospitals, the figures for the private voluntary should be compared with those for the rate-aided certificated group. The recovery rate (or number discharged as recovered per 100 admitted) of the former exceeded that of the latter by 9·2 *per cent.* If there also be taken the figures for those discharged as improved, thereby including all who were restored in health, and in the great majority of cases to fitness for home life and efficiency for work, the proportion of recovered *plus* improved among the private voluntary group exceeded that for the rate-aided certificated by 23·3 *per cent.* It is reasonable to surmise that if rate-aided patients were afforded suitable facilities for entering public mental hospitals as volunteers, they would come as readily as patients of the private class, and with a prospect of equally good therapeutic results. The conservative estimate of a 10 to 15 *per cent.* improvement in the results of their treatment is obviously worthy of serious consideration, not only from the humanitarian aspect, but also from the point of view of the national welfare.

“ Rate-aided patients can be legally admitted for treatment as volunteers in Scottish asylums, but notwithstanding that this has been possible for nearly sixty years, the extreme rarity of a rate-aided voluntary in a Scottish asylum in the past is proof in itself that such provision as exists has hitherto been practically a dead letter. In actual practice the patient has to wait until he is ill enough to be certified as a ‘lunatic,’ thus losing the opportunity of systematic early treatment in a hospital specially equipped for the purpose; yet in no group of diseases is early treatment more important than in the case of mental disorders, owing to the extreme delicacy of structure of that organ which represents the supreme achievement in the scale of evolution, the human brain. Further, in order to

become a 'lunatic' for purposes of treatment, the patient also has to become a 'pauper' on the 'poor roll' of the parish, the procedure for certification and admission being under the control of the poor law authority, which is responsible for action, and also liable (in part) for the patient's maintenance. The majority of self-respecting men and women shrink from the shame of applying to the parish, as also from the odium of certification. Hence valuable time is lost in many cases; and such feelings are not conducive towards recovery when mental hospital treatment eventually becomes an urgent necessity, and further, they are apt to be attached to the hospital itself, and to the 'lunacy' system generally.

"In accordance with existing legislative enactments in Scotland, the maintenance of 'pauper lunatics' in the asylums, poorhouses and private dwellings is paid for mainly out of the rates imposed by the local authorities (District Boards of Control and Parish Councils), also out of the lunacy grant from the local taxation account, and by contributions from relatives and others. It is important to note that the lunacy grant is paid to the Parish Councils, and towards the cost of 'pauper lunatics' only, and that, according to the latest, or Tenth, Annual Report of the General Board of Control for Scotland, the lunacy grant for the year ended 15th May, 1923, amounted to £115,703, or about 2s. 9d. weekly for each certified patient. It is to be observed that there is no statutory provision for the application of the grant towards the cost of voluntary patients of the rate-aided class, and this has proved the great obstacle in the past to the admission of rate-aided patients as voluntaries to the public asylums. Parish Councils have been reluctant to lose the benefit of the grant (as they would do) in the case of voluntary rate-aided patients in asylums, and consequently they have not encouraged the voluntary system. This short-sighted policy would soon be discarded by a simple and obvious provision of the statute, one of the effects of which would be to reduce the disability of certification—in the apt words of the above Report—'to its proper place of a social and legal necessity.' The disability of pauperization could not be removed unless the present lunacy obligations of the Parish Councils of the country were transferred by appropriate legislation to the District Boards of Control, thereby bringing the administration of mental diseases into line with that of infectious diseases, including tuberculosis.

"It seems only fair to expect, if the above disabilities were remedied and the early treatment of mental diseases was encouraged in the ways indicated, that rate-supported mental patients would in time come to the mental hospitals at least as willingly as do private patients at present, and perhaps eventually with no more reluctance than do the rate-aided inmates of fever hospitals and sanatoria.

"In any case, the legislation which the Board of the Crichton Royal Institution now so earnestly urges and recommends would not only remedy factors which at present seriously handicap the mental hospital treatment of the rate-aided or poorer classes, but also by facilitating their early treatment, as voluntary inmates of mental hospitals, would do much to enhance the utility of the statutes, and effectually promote the general health, happiness and efficiency of the community.

"W. J. H. MAXWELL,

Chairman of the Board of Direction.

"C. C. EASTERBROOK,

Physician Superintendent of the Institution."

OBITUARY.

WILLIAM ARNOT PARKER, M.B., C.M.Glasg.,

Medical Superintendent, Glasgow District Mental Hospital, Gartloch, N.B.

We regret to announce the death of Dr. William Arnot Parker, who died at his residence, Beechwood, Gartloch, on Wednesday, December 24.

Though he had been failing in health for some years, his wide circle of friends and acquaintances were hopeful that he had recently regained his strength and had still before him years for useful work, but the end came suddenly and unexpectedly.

Dr. Parker graduated in 1889 at Glasgow University, and after an experience in general hospital work was for several years Assistant Medical Officer in the County Asylum at Lancaster and the Glasgow Royal Asylum, and Senior Assistant at Gartloch Asylum.

When Dr. Oswald was appointed Superintendent of the Glasgow Royal Asylum Dr. Parker was chosen as his successor at Gartloch in 1901.

One cannot speak too highly of the work Dr. Parker has done in helping forward and putting into practice the most modern and humane methods for the care and treatment of mental affections.

Dr. Parker was naturally of a quiet and reserved disposition, but he took a genuine interest in the work of the Medico-Psychological Association, and he was always ready to look favourably on any new development in medical thought and science which would forward his life-work. He was eminently progressive.

His contributions to medical literature were few, and probably the most interesting and instructive of these were his Annual Reports. These were full of suggestive and original thought. The large number of medical officers and clinical clerks who have passed through Dr. Parker's hands all testify to his helpful and valuable guidance.

Dr. Parker was a staunch friend and had a wide circle of acquaintances. The affection and esteem in which he was held was shown in the remarkable gathering at a memorial service held at the Asylum on the day of his funeral. The service was very impressive and participated in by many of his patients, whose demeanour and expressions were those of sincere sorrow.

The ceremony at the graveside in the Glasgow Necropolis was attended by a large and representative gathering of his professional colleagues, members of the District Board of Control and Town Council.

HAMILTON C. MARR.

Lieut.-Col. RICHARD GUNDRY ROWS, C.B.E., D.Sc., M.D., Pathologist, County Mental Hospital, Prestwich.

All students of mental medicine will have heard with the deepest regret of the death of Dr. Richard Gundry Rows. He was well known to the Association for his many contributions, and for the work he did in connection with mental medicine before, during, and after the war. Dr. Rows was a Cornishman, and his father was the Chairman of the Education Committee of that county. He was educated at Queen's College, Taunton, and graduated M.B.Lond. 1891. He also took in the same year M.R.C.S. and L.R.C.P.London, and in 1892 became M.D. It was after a short period of general practice in Reading that he decided to concentrate his attention on the study of mental diseases. His first appointment was at the City Asylum, Birmingham; and afterwards he began work under the Lancashire Asylums' Board. His attitude from the beginning was broad. At the Prestwich Mental Hospital he commenced to lay the foundation of his life's work in neuro-pathology. From this Hospital he passed on to Whittingham Mental Hospital, and after a short tenure of office there, was appointed Assistant Medical Officer and Pathologist to the County Mental Hospital at Lancaster, where at that time Dr. Cassidy, the Medical Superintendent, was engaged in reorganizing the Pathological Department. It was there that Dr. Rows found his opportunity of basing all his original investigations on the sure foundation of neuro-pathology. There was no one who came in touch with him but could be struck by his accurate technique and his highly developed sense of criticism. All was controlled by his wide reading of his subject, so that his opinion on many intricate points was welcomed and commanded respect.

It was this preliminary training in neuro-pathology that fitted Rows for the rôle he took up during the Great War. He felt it his duty to volunteer, and his appointment to the hospital at Maghull, near Liverpool, was not only fortunate for the shell-shocked soldiers, but fortunate also for those who afterwards were engaged as medical officers under the Ministry of Pensions. It was at Maghull that a progressive movement, which might have lain under a shadow in different circumstances, was brought to light. Colonel Rows, as he then was, demonstrated conclusively with the aid of his staff that the early treatment of insanity, although advocated by many of his predecessors, required nothing more than education, foresight, and courage to convert theory into practice, and so save many a drifting mental case from becoming a derelict.

Combined with this, his administrative qualities were of a high order, and although everyone recognized how high he stood in the scientific world, one felt

the charm of his modesty. With all his responsibilities he remained a companion worthy of cultivation. His knowledge of general literature was wide. He had a fine appreciation of music, and was fond of outdoor games, but his energies were chiefly concentrated on the advance of mental medicine.

In his conversation his theme always was the treatment of the patient, and his sympathies were entirely directed towards them in all their troubles.

His death was particularly unfortunate, as he had just taken up a new post, where his accumulation of knowledge would have been of the greatest advantage to all associated with him. He had just completed a work on the psycho-genesis of epilepsy, and was on the eve of carrying out new researches on the influence of disturbance of the sympathetic nervous system on young animals in relation to cerebral development.

This new departure marked the breadth of his training and mind. Colonel Rows combined that rare qualification of one who could apply the necessary equipment of neuro-pathology to functional and organic nervous disorders in the broadest sense.

It is quite unnecessary to refer to his individual publications, which were of such importance that he was invited to the United States to give a series of lectures. There is no doubt that had Colonel Rows lived, his ideas would have been suggestive to us all, and reached fruition in time. Personally and scientifically we miss him, and although in his 58th year, he was just at the zenith of his powers, which one had hoped would have been of great influence for some time to come.

D. ORR.

CHARLES MOLESWORTH TUKE, M.R.C.S.Eng., of Chiswick House,
Chiswick, W. 4.

By the death of Dr. Charles Molesworth Tuke on January 24, the medical profession has lost the last member of a family that for more than 140 years have been leaders in the domain of psychological medicine.

One of the first members of the family, though not a direct antecedent, to acquire fame in this branch of medicine, was William Tuke, who founded the Retreat at York, and was the pioneer of the humane treatment of insanity. Charles Tuke's maternal grandfather was John Connolly, the Superintendent of Hanwell Asylum. Henry Maudsley, the founder of the present Maudsley Hospital, was his uncle, and his father, Harrington Tuke, made his name as a consultant, and started the Manor House, a private mental hospital at Chiswick. It was after his father's death that he and his brother Seymour, who died in 1917, moved the hospital to the present beautiful Chiswick House, a little more than 32 years ago.

Charles Tuke's death is an irreparable loss to the host of friends who knew him as a gentleman of the highest ideals and most loveable character. The phrase "Tuke of Chiswick" is known and respected far beyond the bounds of psychological and general medicine.

He made for himself a name that will be lasting, and that stands for all that is best and most human in the treatment of insanity. He worked to make the atmosphere of Chiswick House that of a private country house, and to dissociate it from all appearance of an institution.

His whole life was devoted to making patients feel that they were his friends—with what success may be gathered from the very large number of former patients with whom he always kept in touch.

He always did much within his circle to rescue mental illness from the cloud of ignorance and superstition with which it is enveloped in the lay mind.

His innate qualities of sympathy and kindness were quite unusual—partly perhaps an inheritance from those predecessors who spent their lives giving expression in their work to these same qualities.

He lived the life of a country gentleman, and maintained that old-world air of courtliness and gallantry that is now becoming so rare in England.

Charles Tuke was educated at Merchant Taylors' School. He then became a medical student at St. George's Hospital, and took his M.R.C.S. in 1881.

He held the post of Assistant Ophthalmologist and Assistant Surgeon Registrar at St. George's Hospital, and later became Resident Clinical Assistant at Bethlem

Royal Hospital. He then joined his father, Harrington Tuke, at the Manor House in Chiswick Lane where he was born.

A great sportsman, Dr. Tuke was a cricketer of considerable ability. He was a member of the M.C.C. and Incogniti, and for some time was a fast bowler for Middlesex. He was an active member of the Medico-Psychological Association since 1881. In 1904 he was President of the West London Medico-Chirurgical Society, and he recently became a member of the Government Committee for dealing with mental derangement among discharged sailors and soldiers.

Dr. Tuke was a very keen Conservative and gave invaluable help to the successive members for his district. He served with energy and enthusiasm on numerous local committees, and held the post of ruling councillor of the Chiswick and Bedford Park Habitation of the Primrose League, of which Mrs. Tuke is Dame President. He was always ready to help local charities by opening the grounds of Chiswick House for these functions, and frequent fêtes were held there on behalf of the West London Hospital.

Though suffering from a fatal illness, Dr. Tuke's whole concern during his last days was for his patients rather than himself.

DOUGLAS I. O. MACAULAY.

NOTICES OF MEETINGS.

Quarterly General Meeting.—May 21, 1925, in London.

South-Eastern Division.—April 30, 1925, at Severalls Mental Hospital, Colchester.

South-Western Division.—April 30, 1925, at Brislington House, Bristol.

Midland and Northern Division.—April 23, 1925, at the Leicestershire and Rutland Mental Hospital, Narborough.

Scottish Division.—June 4-5, 1925, at Inverness.

Irish Division.—April 23, 1925, at Stewart Institution, Palmerstown, co. Dublin; July 14, 1925; November 5, 1925; April 22, 1926.

APPOINTMENT.

TAYLOR, ARTHUR LOUDOUN, B.Sc., M.B., Ch.B., F.R.C.P.Edin., Senior Assistant Medical Officer, County Mental Hospital, Burntwood, Lichfield.

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THE JOURNAL
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Also the following Reports :

- Report of the Second International Congress of Military Medicine and Pharmacy, Rome, 1923.
- Report of Royal Eastern Counties' Institution for the Mentally Defective, Colchester, for 1924.
- Bulletin de la Société d'Ophtalmologie de Paris, No. 3, 1925.
- The Alleviation of Chronic Progressive Deafness, by *Dr. G. C. Cathcart*. (Reprint from *The Lancet* of May 9, 1925.)
- Report of the Inspector-General of Mental Hospitals of New South Wales for the year ending June, 1924.
- Report of the Lunacy Division of Egypt for the year 1923.

Books received :

- Sex Hygiene, by *Oliver Waldo Lincoln*.
- Peculiarities of Behaviour, by *Wilhelm Stekel*.
- Health and Psychology of the Child, by *Dr. E. S. Chesser*.
- Lehrbuch der Psychologie, vols. i and ii, by *Fredrich Joli*.
- The Mind in Health and Disease, by *Dr. T. Waddelow Smith*.
- Collected Papers, vol. iii, by *Sigm. Freud*.

ANNUAL MEETING, BIRMINGHAM, 1925.

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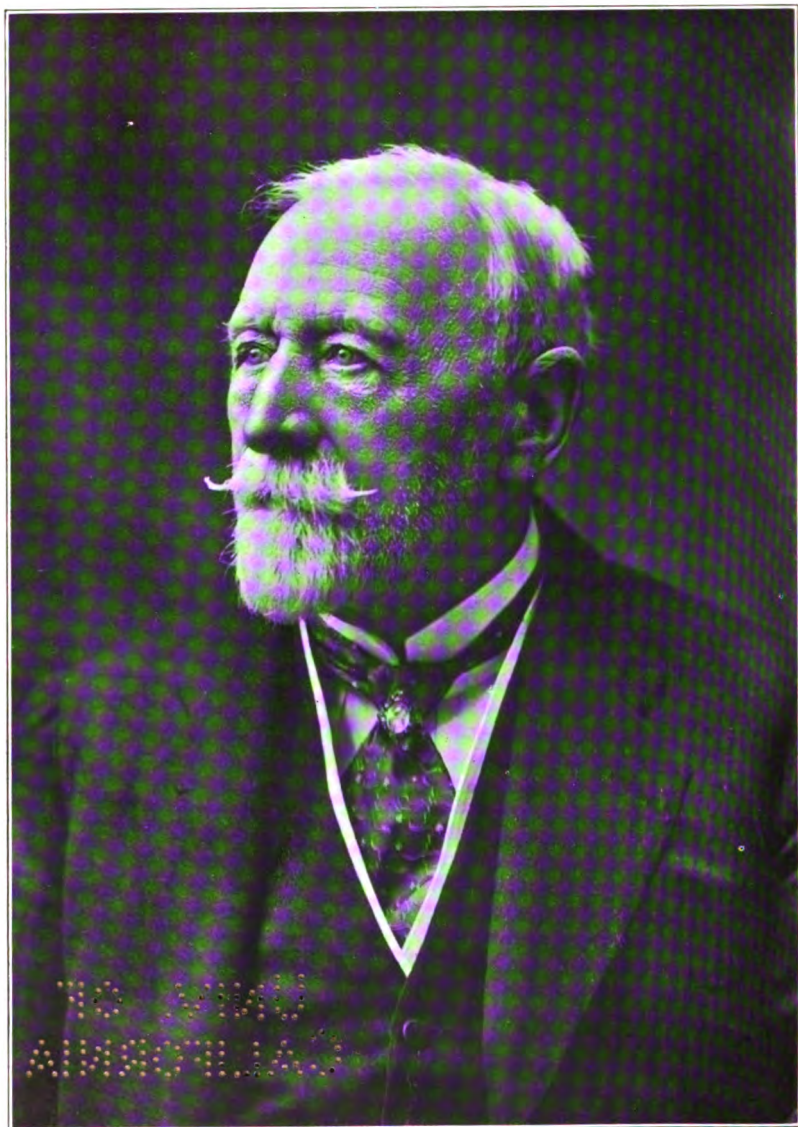
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THE JOURNAL OF MENTAL SCIENCE

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JULY, 1925.

VOL. LXXI.

THE RIGHT HON. SIR THOMAS CLIFFORD ALLBUTT, *K.C.B.*,
M.A., *LL.D.*, *D.Sc.*, *M.D.*, *F.R.C.P.*, *F.R.S.*, Regius Professor
of Physic in the University of Cambridge.

ONE of the most honoured and distinguished members of the Medico-Psychological Association, Sir Clifford Allbutt, passed away suddenly in the 89th year of his age at his home, St. Radegund's, Cambridge, on Sunday, February 22. His mind was clear to the end, and within a few months of his death he was an active leader of the medical profession.

He was born in 1836, of Yorkshire parents, the son of the Rev. Thomas Allbutt, Vicar of Dewsbury, who married Marianne Wooler, of Dewsbury, and was educated at St. Peter's School, York. He entered Caius College, Cambridge, at the age of twenty, where he gained in his first year a Classical Scholarship, and others subsequently. The medical faculty was just then awakening, but I suppose that the young graduate did not foresee the great part he was destined to play in the foundation of the great medical faculty now existing at Cambridge. This brilliant student graduated, and the next year took a First Class in the Natural Sciences Tripos. He received his clinical education at St. George's Hospital, and also studied in Paris. He next took his *M.B.* degree at Cambridge in 1861, the *M.A.* in 1867 and his *M.D.* in 1869.

Clifford Allbutt, while he was studying, formed a friendship with Lockhart Clarke, the distinguished pioneer of the minute anatomy of the nervous system; and with George Henry Lewis, who was at that time preparing a chapter on this subject in relation to the physical basis of mind. He maintained this friendship with George H. Lewis until his death in 1878. It was natural that he should also have made friends with George Eliot, and it is said that he was the "Lydgate" of *Middlemarch*. This intimacy no doubt

influenced in some measure Sir Clifford's love of literature, pure English and charming style of writing.

In 1862 Dr. Clifford Allbutt was appointed Honorary Physician to the Leeds House of Recovery, and two years later Assistant Physician to the Leeds General Infirmary, Dispensary and Fever Hospital; also Lecturer in Practical Physic to the Yorkshire College at Leeds. Not only did he teach medicine, but he lectured on anatomy as well, showing thus his mastery of the foundations of medical knowledge.

During the next twenty years we find him acting on the Staff of the Leeds Infirmary, and at the same time doing a large and growing consulting practice, until 1889, when he became a Commissioner of Lunacy for three years. Just about the time he was appointed the Lunacy Act of 1890 came into force. "It consists of 300 clauses and enactments, weighs nearly half-a-pound and the cost is 1s. 8½d. It deals fully with the legal aspects of lunacy, but fails to give attention to the medical aspects." It may be reasonably assumed that had Clifford Allbutt been appointed earlier, possessing such a wide knowledge and experience of medicine, he would have urged the importance of considering the necessity of research and the early treatment of mental diseases on hospital lines. However, this distinguished and original-minded man was destined for a higher position, and after serving three years as Commissioner, he was appointed Regius Professor of Physic to the Cambridge University in succession to Sir George Paget, and Fellow of Caius and Gonville, as well as Physician to Addenbrooke's Hospital.

For these posts Clifford Allbutt was admirably fitted. He had acquired a large and varied experience not only of his profession, but of human affairs and of the dispositions of men and women. Quite early in his career he wrote a book on *The Uses of the Ophthalmoscope in Diseases of the Nervous System, of the Kidneys, and in Certain General Disorders.* As a tribute of friendship he dedicated it to another great physician and philosopher—Dr. Hughlings Jackson.

The most original chapter in this book is that in which he discusses the changes of the disc in general paralysis of the insane, and he describes the atrophy found. No doubt these were cases of tabo-paralysis; and now we know that both tabes and general paralysis own the same cause.

It will interest the members of this Association to know that Clifford Allbutt first described, in the *St. George's Hospital Reports*, the minute anatomy of endarteritis cerebri in syphilis; this was followed later by the classical work of Heubner on this subject.

Another important contribution to medical science was the

observations made on "The Effect of Exercise on Bodily Temperature," published in the *Journal of Anatomy and Physiology*, 1873. Being a member of the Alpine Club, he got his data during several ascents of Mont Blanc. Sir Clifford was a great walker, enjoyed English lakeland, and was one of a band of "Sunday Tramps" organized by Leslie Stephen.

The first volume of his great *System of Medicine* appeared in 1896, and the last—the eighth volume—appeared in 1899. He contributed articles to all the volumes except the first, and these show what a wide range of knowledge he actually possessed. To exemplify this I will refer merely to the titles:

"Grain and Mushroom Poisoning," "Opium and Other Intoxications," "Mountain Sickness," "Chlorosis," "Neurosis of the Stomach," "Dilatation of the Stomach," "Scrofula" with Mr. Pridgin Teale, "Functional Disease of the Heart," "Mechanical Strain of the Heart," "Disease of the Aortic Area of the Heart," "Adiposis Dolorosa," "Senile Paraplegia," "Neurasthenia."

The editing, cross-references and writing of articles was an enormous work. He was aided by Sir Humphry Rolleston, whose name appeared jointly on the second edition, first volume in 1905, the last in 1912. The *System of Medicine* now required an extra volume—the ninth—and this contained a "History of Medicine" conjointly with Dr. J. F. Payne.

Two of the subjects which Allbutt illuminated by his writing and teaching, and which must be appreciated especially by the members of the Medico-Psychological Association, are "Neurasthenia" and "Blood-Pressure, Hyperpiesis." In the latter article he described irregular and indefinite varieties of health in people beyond middle life which were associated with persistent high blood-pressure and which may never be associated with evidence of renal disease—such patients complain of insomnia, despondency, nervousness and cerebral confusion.

Allbutt's Fitzpatrick Lectures on "Greek Medicine in Rome," one of his latest efforts, were regarded by competent authorities as crowning his labours as a medical historian.

He received degrees from many universities. He was Goulstonian Lecturer 1884, Harveian Orator 1906, Fitzpatrick Lecturer 1909–1910, Moxon Medallist 1921, Fellow of the Royal Society 1880, Member of Council and Vice-President 1914–1916. He was President of the British Medical Association, and, at the meeting in 1920 at Cambridge, a portrait of himself by Sir William Orpen, R.A., now hanging in the FitzWilliam Museum, was presented to him by the Profession, with a medal and a testimonial, which states: "We delight to honour in you a great physician, a

great teacher, and a wise friend in council ; in token of our respect and affection for you as a man, of our admiration for you as a physician and a teacher."

Honours which he received form an imposing list, eventually crowned by his being made a member of the Privy Council.

Clifford Allbutt married in 1869 Susan, daughter of Thomas England of Headingly, and leaves no issue, but the union was a most happy one up to the end.

Sir Clifford Allbutt was a recognized leader of the profession for a great number of years. He was admired and respected by all, more so by those who had the privilege of working with him, consulting with him and of obtaining his help and advice. Moreover, those who were more familiar with him, and his noble character and the personal charm of his manner and the feeling tone of his voice, were impressed with a true affection for him. But the courtesy of his manner never led him to flatter or to lose the courage of his convictions, nor his sense of justice. He was a friend and lover of young men, and he remained young in his heart and mind, though advanced in years. He had ideas and ideals, and they were always in the vanguard of medical science, and for the health and happiness in mind and body of his fellow men—in fact, a practical humanitarian, whose influence has been of the greatest national service.

The institution of the Diploma of Psychological Medicine at Cambridge was largely due to his foresight and efforts. I consulted him upon the syllabus of lectures which I initiated at the Maudsley Hospital and he was good enough to write his approval, suggesting at the same time several slight alterations. He maintained to the end his interest in psychological medicine, as may be gathered from passages which are contained in one of his recent letters, which need no comment—they speak for themselves.

DEAR MOTT,—You asked me if I had read your *Psychology and Medicine*. I have just done so, and with the greatest pleasure. It is a comfort to find we have some pillars who uphold the physiological (and path.) study of mind stripped of medieval entology." . . . "Your hope concerning waning of syphilis is comforting." . . . "Science has her own limited field, which is not philosophy nor literature." . . . "P. 7—Freud and Jung: We have heard all our lives of the contemplative and the practical man; what is gained by the very pedantic terms 'introverts and extraverts'? And the secret springs of character have been the study for ages of the poets and others whose insight is infinitely deeper." . . . "It is grievous that, while railways are scattering populations, no one makes for a photographic survey. Many countries have a characteristic race, e.g., Sussex, long isolated by forest, etc.; Dorset; parts of Yorks; Northumbria; Scottish Border." . . . "Do not speak ill of the mystic; all religion rests upon him. Very curious about the lack of insanity among the persecuted Serbs. I don't see why a sane parent should not produce a defective child if it only falls short of development, an accident or check, as one might say. As to insanity, I am 'intrigued' by the cases of recurrent insanity, e.g., mania. These persons

are quite normal between whiles. I know several of them in private life; quite normal persons for weeks and months until back comes the (poison?). This means that the machinery remains alright. It looks like some 'wireless' disorder, which ought to be run to ground in some gland? " . . . "I have had intimation again of the terrible mischief these men (psycho-analysts) do; even those supposed to be 'trained': young women with minds poisoned, family secrets dragged into the light, bitter discussions, and so on. Calamitous! It is a fashion like 'Christian Science,' etc. We do not realize the harm that is done by talking about things. Evil things become familiar, and tolerated, e.g., people read so often about divorce that they get to regard it as part of customary life. And so for other evils." . . . "'Complex' not very English and not very useful. It does not convey the notion of systematic build-up." . . . "There is lots more to say, if you survive the avalanche."

FREDERICK W. MOTT.

Part I.—Original Articles.

The Sixth Maudsley Lecture: On Mind and Brain. Delivered by JOSEPH SHAW BOLTON, M.D., D.Sc., F.R.C.P.Lond., Fellow of University College, London; Professor of Mental Diseases, University of Leeds; Medical Director, West Riding Mental Hospital, Wakefield, at the Quarterly Meeting of the Medico-Psychological Association of Great Britain and Ireland, held at the Rooms of the Medical Society of London, 11, Chandos Street, W., on Thursday, May 21, 1925.

INTRODUCTION.

DURING the past ten years, largely perhaps as a consequence of the tremendous mental strain to which the nations of Europe have been subjected, myriads of people who previously left the great questions of life and destiny to the priesthood, and contented themselves with their daily round of duties and pleasures, have begun seriously to think. These, seeing their own ignorance in the minds of others, have set to work as raw recruits to cultivate their own little holdings as if the whole world were virgin soil, and they were the first pioneers.

The immediate result has been the growth of a large crop of theories of mind which possess at any rate one common characteristic, the ignoring of the accumulated knowledge of the past, and one common certainty, that each alone has found the truth. We live, in fact, in the midst of reformers who consider that the episode of the great war would, but for their personal efforts, have destroyed civilization and all it connotes.

We, whose study is the human mind, are naturally not the least of sufferers from this wave of enthusiasm. We are either ignored,

or are regarded as on a par with the man who hid his talent in the earth. The academic psychologist, who, till of late years, has considered our specialty unworthy of notice, now flaunts the scraps of information he has acquired from the study of a number of terror-stricken soldiers, and promises openly that the prevention and cure of mental disease is in sight. The reason for this is not far to seek. In this country at least, the law for the protection of the person and property of the sufferer from a disordered mind has not only made the patient a leper, but has equally branded all who have cared for and studied him during the past century.

And out of our own house have come some of our most disparaging critics. Men of our specialty who have worked a few remarkable cures abroad, but who forget or ascribe to chance the equally remarkable cures effected during their daily work—raw recruits to our specialty who left us for active service, and have come back to teach us our work—those who sit on the hedge and wait and see “if there is anything in it”—those who think that there is 10 *per cent.* of truth in every new thesis—and, finally, those who wish to be “up to date” and are ever on the look-out for new things—all have forgotten the lessons they learned in other departments of science and medicine, that generalizations are painfully evolved through the prolonged study of actual phenomena, and that anatomy is the handmaid of physiology and pathology the servant of the art of medicine.

The beginning of the war marked the acme of a period of fruitful study of mind and brain. The following quotations from a recent work by McDougall (1) would indicate that our work was stillborn :

“The doctrine of the localization of functions in the cerebral cortex, which about the beginning of this century seemed to be well established, at least for the elementary sensory and motor functions, is also rocking insecurely, and seems to need at the least a complete recasting in some form not yet suggested” (pp. 31-2).

“The brain of the frog is but very little developed; and a little lower in the scale we find animals which exhibit behaviour in spite of having no brains, as we shall presently see. It may be, then, that at the level of organization of the frog the brain is not essential to purposive action—as it seems to be in animals higher in the scale of life” (pp. 55-6).

The latter of these quotations is particularly interesting as an example of the quaint reasoning which even expert writers nowadays produce.

The Rasputin-like philosophy of Freud with its cult of largely naked votaries is another example of the extraordinary methods of thought of the present day.

It seems to me therefore that I can best employ the valuable opportunity accorded me by the generosity of Maudsley and the favour of the Medico-Psychological Association by giving a general

description of the present state of knowledge of mind and brain, in so far as this is based on facts and not on preconception or theory. I hope that the web of fact which I propose to weave for your consideration will, at any rate, lead you seriously to consider its utter incompatibility with the various modern schools of psychology which confuse philosophy and fact, "Why" and "How," religion and science, the Universal Mind of the Creator as shown in creation, and the imperfect and fledgling mind of the higher mammalia as exhibited by its recently evolved leader man.

BEHAVIOUR, PURPOSIVE ACTION AND INTELLIGENCE.

The three terms, behaviour, purposive action and intelligence, are nowadays in common use, and often are employed interchangeably. Actually, however, what we observe is "behaviour," and we may rightly conclude that this or that action is "purposeful," though it is necessary seriously to discuss in any given case whether we are justified in considering it "purposive," since this term indicates purpose in the agent rather than in the act. Intelligence equally with purposive action connotes purpose or intention on the part of the exhibitor. On the other hand an instinctive action is an act caused by some systemic excitation or external stimulus, and free from any intent or purpose on the part of the agent.

Simple examples of behaviour are the daily occurrence of light and darkness following rotation of the earth, the monthly cycle of tides following movements of the moon round the earth, and the annual cycle of seasons following movement of the earth round the sun. We explain such behaviour by a simple generalization of the science of physics. We do not regard the earth, moon and sun as agents acting purposively.

Again, the density of water is greatest at 4° C., and therefore our ponds and streams freeze first on the surface. As a sequel of this simple physical truth, life, as we know it, is possible on the earth. We do not consider the mode of freezing of water as purposive action on the part of the water, but we again explain the facts by generalizations of the science of physics. Here, however, we come nearer to the problem of a First Cause, since the fact of water being of maximum density at 4° C. appears to us so purposeful.

Coming to more complex questions, plants grow towards the light, many flowers follow the sun in its daily course, numerous flowers close up at nightfall, and certain plants catch and abstract the juices from insects. Such actions equally constitute behaviour, and behaviour which is highly purposeful, though at the same time behaviour of such complex origin that we are face to face with a

First Cause of phenomena. We do not call such actions purposive, and we do not infer intent on the part of the agents.

We have here reached the stage for the generalization that purposeful action is essential to evolutionary progress, and that it constitutes the necessary handicap in the race for survival and elaboration. Here, however, we are again merely stating the method by which evolution occurs, and are not attributing intent to the exhibitors of the actions cited.

Intent may, throughout this discussion, fairly be attributed to a First Cause, Creator, God, Nature, use what Name you will, but there is no justification for regarding behaviour or purposeful action as indicative of more than this.

The attitude I wish to maintain now and throughout the discussion which follows is that purposeful action, whether of the lowest or the highest degree of complexity, is nevertheless merely action for a purpose, and not action based on intent by the agent. I regard as utterly mischievous any attempt to attach to the purposeful behaviour of lower forms of life interpretations based on human actions and conduct—if I may coin a single, and perhaps inadequate word—to *anthropize* the actions of the lower animals. Before purposeful action is regarded as purposive, it must first be shown to be possibly or probably such, and finally must be proved to be such. This can alone be done on the basis of our accumulated knowledge of mind and brain, which in general terms I propose now to summarize.

I shall deal in turn, during the description which follows, with insects, birds, and mammals, and finally with man.

ORIGIN AND BEHAVIOUR OF INSECTS.

Insects, which with birds and mammals are the most common and highly organized forms of life on the earth, differ from these grossly in structure and still more in the great antiquity of their origin. It is my intention to indicate that the evidences of purposeful action which are exhibited by insects in high degree are based primarily on their ancient racial life, and are not indications of intelligent activity.

Taking sixty millions of years as the approximate duration of life on the earth, it is at least half this interval—during the Cambrian period—since the first arthropods, segmented animals possessing a chitinous exo-skeleton, appeared in the seas. The trilobites, which are their early representatives, exist now in fossil form alone.

It is likely that the very chitinous envelope which has assisted

their survival to the present time in such varied and elaborate forms has been responsible for their failure to evolve into a dominant race. The birds also, with a generally rigid bony skeleton, may owe their failure to evolve much beyond their original reptilian ancestors to this non-plastic bony framework. The mammals, on the other hand, perhaps owe their evolution to their many-jointed, and therefore non-rigid skeleton.

The arthropods, as water-dwellers, survived after their development for some ten millions of years, first invading the dry land as land scorpions in the Silurian period. Some millions of years later, during the Carboniferous period, whose remarkably abundant vegetation was responsible for our coal measures, the race of insects appeared with consequent cross-fertilization of flowers. The insect group of arthropods is thus of quite half the antiquity of the parent group. The origin of the metamorphosis of insects is involved in obscurity, but the succeeding Permian period with its prolonged ice-age and varying climatic conditions may readily have been responsible for the separation of the life of insects into a larval, a resting, and an adult stage.

In comparison with insects, birds and mammals are comparatively late comers. The former of these evolved directly from the reptiles of the Permian period, and, although the earliest mammals may have preceded them, nevertheless the birds first came into prominence, although they still remain as regards their grade of evolution little better than reptiles, and are now without material change after some millions of years of survival. Mammals, on the other hand, only began to rise in size and degree of evolution some couple of millions of years ago. Having commenced to progress they seem, however, to have evolved with remarkable speed, reaching the humanoid stage within a million years, actual man some 200,000 or 300,000 years ago, and civilized man as we know him the mere trifle of six or seven thousand years ago.

The exo-skeleton of insects is naturally a much less variable structure than the soft plastic tissues of mammals, and even a cursory survey of the insect world produces numerous examples of apparently useless appendages and structures. Similar instances are seen when the metamorphosis of insects is studied. It is in fact abundantly clear that insects can only be understood on the thesis that their present structure is based as much on their past history as on their present or future needs.

The mayfly, for example, possesses neither mouth nor digestive tract and lives for hours only. Its larval life is certainly not justified by such an evanescent product, and we are thus compelled to fall back on the thesis that the present adult life of the insect is

merely a remnant of what ages ago was laboriously evolved and useful.

The queen ant, again, possesses wings which are used for one short flight only, and are then said to be torn off by the insect herself.

The daddy-longlegs is a delicate, fragile and harmless insect, but its larvæ are most harmful and destructive.

The stag-beetle, again, is a harmless vegetarian, with an exoskeleton like plate armour, and a pair of very powerful jaws. These jaws, though they can give one a nasty pinch, must be relatively useless to the insect, but for years during its larval stage they were employed for the boring and destruction of wood.

The lobster moth and the puss moth develop from very extraordinary caterpillars; and the females of the umber, winter, spring usher and vapourer moths are remarkable and practically wingless insects. The last, in fact, is so helpless that it lays its eggs over its own cocoon, the outside of which it never leaves until it dies.

The antennæ and compound eyes of insects in numerous cases suggest a quite unnecessary elaboration, and the replacement of lost limbs which occurs so readily in the arthropods indicates, to say the least, a very crudely organized and unvarying structure.

On the basis of ancient origin, relatively unvarying exo-skeleton, and very slow evolution, with the gradual adding of structure to structure and reflex to reflex, it is possible to understand such apparently absurd or useless variations.

From the physiological rather than the anatomical aspect, a similar generalization follows investigation of insects generally, but particularly the study of such insects as bees, wasps, hornets and ants, which arise from a unit and live in communities with specialization of individuals for various purposes.

Such are ruthless and tireless, and absolutely mechanical in carrying out their functions. The combination acts independently by its units, and individually and collectively is not under discipline. The result of their actions, say in the case of such ants as collect the pupæ of smaller ants after a battle of extermination, often suggests deliberate previous intention, but the fact that the helpless pupæ are removed and brought up as their own can equally be explained on the ground that pupæ to them are pupæ, and as such need care. It may in fact be stated that in an insect community each unit takes up the work, for which throughout untold ages it has become most fitted, when it finds it, and pursues it tirelessly and aimlessly, whether it be cleaning a hive or gathering honey, and quite irrespective of whether other units do their work or not, or even exist. If, during the evening, a wasp's nest be destroyed

and the hole filled with poisonous cotton-wool impregnated with cyanide of potassium, all the later-returning wasps settle on the wool and die there. It would be difficult to produce a clearer example than this of the purely mechanical nature of the act of homing. If such wasps carried about with them a sort of map of the district (1) (p. 80), as McDougall suggests, so as to avoid being lost, they ought at least to note something wrong with the entrance to their nest on their return to it.

Probably the chief reason why insect communities have served as a fruitful source for the anthropization of animal activities lies in the cumulative effect produced on the observer by the small size of the insects and by the number of units at work. In reality the actions of such individuals are no more remarkable in their way than is the capability of a chicken of two days to peck and even to carry out the complex and purposeful act of scratching. Such a chicken may be seen to scratch on a bare board as commonly as in the litter, and at first at any rate does not complete the act by looking for exposed food and pecking it.

I am personally satisfied that the numerous and elaborate modifications exhibited by the exo-skeleton of insects constitute an incomplete museum of past needs rather than an actual working model of present activity. Innumerable present structures do not necessarily serve a purpose now, but have either served one in the past or were tentative and not deserving of functional survival.

I think it clear that the metamorphosis of insects is evidence of past survival under grossly changing climatic conditions, and is not performed for the purpose of evolving the final product. In fact, one or other of the earlier stages of the metamorphosis is often at the present time the actually important life of the creature, and the final product is an abortion.

I feel certain that the whole arthropod group, in entirety and in detail, has existed for such vast periods of time owing to the presence, during the whole or a part of the life-history of any given individual, of a tough exo-skeleton or similar protection. This exo-skeleton, whilst making for survival, has at the same time resulted in extremely slow, very diverse and entirely inadequate evolution.

ORIGIN AND BEHAVIOUR OF BIRDS.

I shall now deal shortly with the origin and behaviour of birds.

Birds are of relatively great antiquity, and this is probably greater than we have evidence of, since the first known bird, the archæopteryx, discovered in a Jurassic bed of lithographic stone in Bavaria, which was deposited some ten millions of years ago,

is undoubtedly by no means the earliest bird evolved. Although probably far from being the earliest bird, this example shows clear indications of its direct reptilian ancestry in its teeth, its clawed wings, its long tail, and its abdominal ribs.

Whilst these reptilian features are missing from modern birds, it is an interesting fact that when structural differences connected with habitat and general habits are allowed for, all birds are built on one plan, possess a relatively rigid skeleton, and show a remarkable general resemblance to one another.

This indication of the absence of general plasticity or ready variability accords with the fact of their failure to evolve in mind and brain.

As in the case of insects, so in that of birds, numerous attempts have been made, and by no one more than by McDougall, to demonstrate the existence of mental functions by anthropizing their elaborate instinctive reactions. In consequence of their antiquity, and perhaps their generally rigid skeleton, birds exhibit, as do insects, remarkable instinctive activities which on superficial view can readily seem to be the results of reasoning. As I have before remarked, such highly purposeful activities are readily explicable on simple evolutionary grounds.

I shall now refer to certain well-known characteristics of birds which indicate their relatively low evolutionary position as regards mind.

The common fowl.—Fowls, so long as they are hungry, readily follow anyone to get food, quite apart from whether he is carrying a food utensil or not. They are readily afraid of mackintoshes, canvas, sacks, etc., especially when these are in motion, and they are particularly afraid of wind.

All cocks behave in the same manner when let out in the morning, chasing and treading any hen they see, and not infrequently flying at their attendant with beak and spurs. They all use the same feeding note, and often quite apart from the question of whether food is available or even whether hens are present, and they will pick up any small article available and hold it out as a sample of food.

Clucking hens brood their chickens carefully, and the best hens will move restlessly until all the chickens are still. It is quite common, however, for even a calling chicken to be left out to die of cold, and no chickens which cannot find their way to warmth are noticed and protected by the hen. They are allowed to lie out and die. This would happen equally readily in the case of wild birds nesting in trees, were it not for the fact that the nest is deep enough to contain the young, for if any young by chance fall

out the parents leave them to die, although it would be quite easy to replace them in the nest.

Mother hens, also, when feeding young chickens, will pick up quite unsuitable articles—for example, a large grain of maize or a stone—and offer it for consumption. They invoke to *eat*; they do not show *what* to eat. If they have no chickens they will call non-existent chickens. They have, however, a specialized mother-feeling, since they usually drive away or kill the chicks of other hens.

Capons, if of broody ancestry, will bring up series of chickens, and if a brood of large chickens is removed and another of day-olds is substituted, they at once take to the latter and begin to brood them. No hen would do this. If amongst a large number of chickens, whilst they usually know their own brood more or less, capons generally accept for brooding any chick which tries to join in.

Fowls never do as they are told, as for example a dog might come when called and smell at a rat-hole. They can be trained and fondled, but a hen would never go and sit on a nest when told as a dog would go into his kennel.

Parrots.—Even in the case of highly-trainable birds like parrots, one can never be sure that they will not give a severe bite. Some are very tame and rarely bite, but those who do so merely take hold of the finger quietly as usual and bite it in an unexpected and apparently cold-blooded manner. No tame dog would do such a thing even if suddenly hurt, and even such a wild creature as a ferret, when properly handled, rarely or never bites unless hurt, when it would bite anyone.

If birds be named they never respond to their names as a dog does, though the most tame will often respond readily enough to calls or actions. The difference between birds is one of tameness only, and apparent signs of conscious volition are really complex reflex actions anthropized by the observer.

Geese differ from domestic fowls, but equally provide grounds for the same generalization. They are not promiscuous like fowls, but are very slow in pairing and they then remain paired for years. A goose who shows no signs of broodiness will often take to a nest of exposed eggs, and if she once takes to them she will sit and hatch them. Any goose will readily take to goslings, and when she has done so she will drive away others. If then put with a pen of adults she often joins them and takes little or no further notice of her young, unless they keep to her, and it is evident that the behaviour of the young is really the reason why the goose adopts them. Also, when a flock of geese has adopted a number of young

ones, any one of these adults will mother them, and they soon become largely common property. If one of the young is removed, it is really remarkable how rapidly it finds its way back again, even from a distance. A chicken would be at once lost and would chirp, but a baby gosling would quietly and rapidly make a beeline for its colony.

A paired goose, when returned after a long period of absence, at once joins the community and is accepted with her young so long as the others have no young already with them, in which latter case they may refuse the new goslings for a time. The mother of such does not trouble to protect them when they are driven off. A grown-up non-paired gosling, if removed only for a day, is on its return rejected absolutely.

Pigeons differ considerably from domestic fowls. Young pigeons, when paired, begin with infertile eggs, then hatch one bird which dies, then hatch two and lose one, often when half-grown, and finally bring up pairs steadily without any further losses. The cycle of courting, nesting, sitting and bringing up young is a definite one, and as soon as it repeats itself the parents drive out the fledglings. I have on several occasions seen the parents use such most cruelly, and even peck them to death, although a few days before this they were feeding them with the utmost assiduity. The results of my study of pigeons differ entirely from those of McDougall (1), who states :

"I will only say that, unless the angels are constituted very differently from ourselves, there must be more rejoicing in heaven over the life of one faithful pair of pigeons than over the human sinner who repents him of his vileness and cruelty" (p. 100).

Unfortunately for me, I have merely space for facts, and cannot rise to rhetoric.

In the case of birds—the converse of what is found in mammals—the female reproductive cells are of both sexes, and the male, whose reproductive cells are male only, usually possesses distinctive plumage. If this last is not the case, as in pigeons and geese, a prolonged courtship is necessary, almost as if the birds did not know one another's sex. In the case of pigeons, courting by the male is very obtrusive and noisy, whereas in the case of geese, whilst it is equally active, it is performed as a rule very secretly. It may be that this predominance of the female sex, which primarily concerns the carrying on of the race, may have been of less value for evolution than the predominance of the male sex in mammals. In the latter the hetero-gametic sex escapes the troubles of maternity, and so has greater facilities for the evolution of other potentialities.

Birds of a species can readily be varied in plumage and superficial appearance, but on the other hand the active characteristics exhibited by individuals of even grossly different varieties are remarkably uniform. Where individuals differ it is in such crudely basal characteristics as fighting, egg-laying, sitting and brooding, and not in behaviour except as regards tameness.

It is even possible to generalize and state that variety in fowls evolves chiefly from the aspect of appearance or beauty, whereas in the case of mammals it evolves for the exhibition of special attainments, such as ratting in terriers, coursing in greyhounds, etc.

MIND AND BRAIN IN BIRDS.

It is now my intention to demonstrate, as the result of a special microscopic examination of the cerebra of certain selected birds, that their nervous apparatus is on a par with the purely instinctive and mechanical characteristics I have described, and that it does not even foreshadow the remarkable evolution of the organ of mind which occurs in the mammalia. The investigation was commenced in order to elucidate one or two minor matters of interest, but eventually it became somewhat extensive, and produced results of considerable importance regarding the subject under discussion. I may say in fact that I am now personally satisfied that the trend of my description up to the present stage is an accurate representation of insect and bird behaviour.

In the cerebra of birds there is, on each side of the mid-line and occupying perhaps one-half of the dorsal surface, a slightly raised oval area which is considerably more extensive in distribution than the lateral ventricle, of which it constitutes the roof. The exact position of this oval area depends on the size and position of the olfactory lobe, and on the straightness or curvature of the individual cerebrum in a sagittal direction (see Plates I and II).

This area is the rudimentary pallium of the olfactory apparatus, and is all that the bird possesses of the nature of cerebral cortex, the rest of the cerebrum consisting of caudate nucleus.

The relationship of this rudimentary pallium to the olfactory lobes on the one hand, and to the optic lobes on the other, will now be described.

For this purpose, apart from a general examination of a series of brains of birds, I have made a special study by the method of sagittal serial section of the brains of the tomtit, parrot and pheasant.

The tomtit or bluetit is a very friendly and extremely pretty common English bird. It is in reality a dreadful little carnivore. It is a brain-eater, and, especially when in captivity, kills other birds before pecking open their skulls.

DESCRIPTION OF PLATE I.

To illustrate the Sixth Maudsley Lecture by Dr. JOSEPH SHAW BOLTON.

FIG. I.—Upper surface of brain of goose. $\times 4/3$. The olfactory lobes are obvious in front, as are the medulla and cerebellum behind. On the surface of the cerebral hemispheres, on each side of the midline for the hinder three-quarters and occupying rather more than one-half of the superficial area, are seen somewhat raised oval areas crossed by coronally-placed veins. These areas contain the rudimentary pallium or cerebral cortex described in the text (p. 367), and by their inner parts roof over the lateral ventricles.

FIG. II.—Brain of goose from the left side and slightly from above and behind. $\times 4/3$. The left optic lobe, marked by a vertical gash, is visible below and between the left cerebral hemisphere and the cerebellum. The oval area shown in Fig. I is clearly visible on the upper part of the left cerebral hemisphere.

DESCRIPTION OF PLATE II.

To illustrate the Sixth Maudsley Lecture by Dr. JOSEPH SHAW BOLTON.

FIG. III.—Upper surface of brain of turkey. $\times 4/3$. The olfactory lobes, which in this bird lie below the cerebral hemispheres, are merely indicated anteriorly. The area of rudimentary pallium occupies a very similar distribution to that in the goose.

FIG. IV.—Brain of turkey from the left side and slightly from above and in front. $\times 4/3$. Compare with Fig. II.

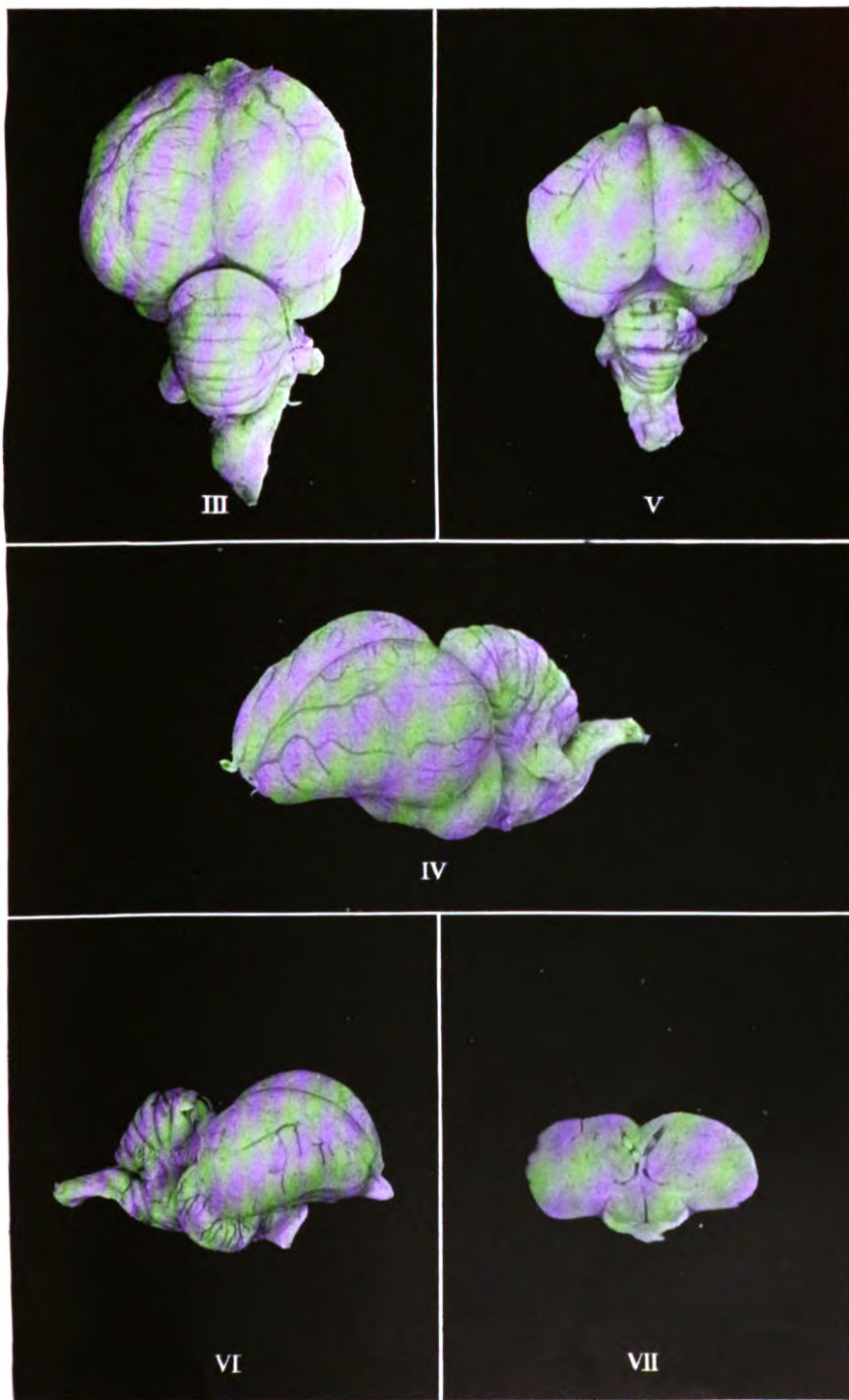
FIG. V.—Upper surface of brain of common fowl. $\times 4/3$. In this brain the olfactory lobes lie underneath almost as in the turkey. The cerebral hemispheres are broader behind and more pointed in front. The area of rudimentary pallium extends further forwards than is the case in the other brains.

FIG. VI.—Brain of common fowl from the right side and slightly from above and in front. $\times 4/3$. The area of rudimentary pallium is clearly defined as a longitudinal roll near the midline.

FIG. VII.—Coronal section of the brain of the common fowl. $\times 4/3$. The lateral ventricles form an X-shaped fissure. The rounded bodies lying inside them for the purpose of keeping the walls apart are pieces of glass tubing. The oval areas partly covering the roofs of the ventricles are clearly outlined above. The corona radiata referred to in the text (pp. 368–9), passes down the midline between the lateral ventricles.



To illustrate the Sixth Maudsley Lecture by Dr. JOSEPH SHAW BOLTON.



To illustrate the Sixth Maudsley Lecture by Dr. JOSEPH SHAW BOLTON.

The parrot employed was a blue-fronted green Amazon. These birds are imitative and readily tamed. Their speech differs from that of the grey African, in being a less good imitation of the human voice. At a distance the voice sounds rather like a human voice heard indistinctly through a telephone, and on going nearer to the bird one does not find the words much, if anything, clearer. A study of the speech of both types of parrot clearly indicates the purely imitative nature of the effort.

The pheasant originally came from Asia Minor. • It is remarkable chiefly for its brilliant plumage, and is a bird of simple habits with low power of adaptation to new surroundings.

The olfactory lobe in the parrot and tomtit comes into direct contact with the lateral ventricle, and in the pheasant the cavity of the ventricle extends into the interior of the olfactory lobe.

In all the birds, but most clearly visible in the tomtit, from the olfactory bulb there extends backwards and upwards to the ventricle a thick superficial layer of mixed cells and a deeper layer of small cells most marked anteriorly, curving upwards and backwards, and ending at the ventricle. Deeper still is a layer of mixed large cells which becomes more shallow posteriorly, and also ends at the ventricle.

Constituting the roof of the ventricle is a layer of large, irregular, crude cells of "hippocampal" type, which resemble short pyramids towards the midline, and eventually take on a columnar appearance, ending in a corona radiata of fairly coarse fibres which undergoes a semi-decussation, and then passes down in front of the anterior commissure to end laterally in the optic lobes (see Plate II, fig. VII).

Thus, the afferent fibres of the olfactory lobes, after passing through a series of cell stations, and after undergoing a semi-decussation, end in the optic lobes.

There is thus in birds, through the nervous tissue which forms the roof of the lateral ventricles and which antecedes the later evolved pallium of the mammalia, a direct semi-decussated connection between the olfactory lobes and the optic lobes—between the sense of smell and the visual reflex apparatus.

In the pheasant the radiating bundles coalesce in the mid-line as one sheaf and show evidence of decussation. There is no commissure of decussating fibres. The corona radiata, after condensing into a bundle, occupies on cross-section $\cdot 27$ sq. mm. The anterior commissure in cross-section occupies $\cdot 12$ sq. mm. These bear to one another the relationship of 5 : 2 approximately. The corona radiata enters the optic lobe on each side.

In the tomtit the radiating bundles are just enough separated at the midline to show an attempt at a commissure of decussating fibres, which, however, is not sufficiently condensed to be measurable as a bundle. The corona radiata, after condensation into a bundle, occupies in cross-section $\cdot 071$ sq. mm. The anterior commissure in cross-section occupies $\cdot 037$ sq. mm. These bear to one another the relationship of 2 : 1. The corona radiata enters the optic lobe on each side.

Proportionately, therefore, the anterior commissure is relatively somewhat larger in the tom-tit than in the pheasant, but otherwise there is a general similarity between the brains of these two birds.

In the parrot the radiating bundles are large and definite in each hemisphere. They are united by a bundle of decussating fibres which lies in front of the anterior commissure. Laterally each radiating bundle passes down in front of the anterior commissure and enters the respective optic lobe. The sectional area of the commissure of decussating fibres, and also that of each radiating bundle, is approximately .555 sq. mm. The area of the cross-section of the anterior commissure is 1.52 sq. mm. Hence the radiating sheaves from the olfactory region to the optic lobes form a semi-decussation, each olfactory lobe being equally connected to each optic lobe. Further, the anterior commissure of the parrot is nearly three times the size of these radiating bundles, and is proportionately therefore much larger—some $5\frac{1}{2}$ times than it is in the tom-tit, and some 6 times larger than in the pheasant.

Actually the pheasant is much the larger bird, and nevertheless its radiating bundle is only one-half in actual cross-section of what it is in the parrot, whilst its anterior commissure is less than one-tenth of what it is in the parrot.

This difference is probably the explanation of the great physiological dissimilarity which exists between the two birds. The pheasant lives a relatively simple life, and exhibits nothing distinctive in the way of motor adaptations. The parrot, on the other hand, employs its beak and limbs separately and conjointly in the performance of very complex and elaborate acts. It is extremely imitative, and often can be so highly trained that its motor reactions superficially resemble those due to intelligent volition.

It is clear from the above considerations that birds are merely elaborate machines, and possess neither mind nor a nervous mechanism for the evolution and performance of mental functions. This fact, together with their stereotyped and rigid skeletal structure, accords with their failure to evolve into higher forms in spite of the antiquity of their race. This very antiquity and the fact of their survival in a relatively unchanged state through such æons of ages afford the explanation of their remarkable and purposeful instinctive activities, which may usefully be compared with those of insects and are due to similar causes.

In some respects, therefore, but particularly in the fact that both must be classed amongst evolutionary failures, insects and birds resemble each other. The former began handicapped by a rigid exo-skeleton, which, however, has assisted their survival; the latter succeeded in evolving means of survival which enabled them to escape the fate of most of the Permian reptiles, but the very feathers and wings, which saved them then, served as a disastrous handicap and enabled the mammalia to forge ahead.

THE ORIGIN OF MAMMALS.

Up to the present I have dealt with behaviour and structure in the case of insects, and with behaviour followed by a description of the simple olfactory-optic cerebral apparatus of birds.

In the case of mammals, however, in which elementary purposive, as well as purposeful, action evolves *pari passu* with the gradual unfolding of the organ of mind until human mental activity is

reached, it is impossible to consider mind and brain separately, since function and structure here run hand in hand.

The very earliest evidence of mammalian life dates from the Triassic period, upwards of ten millions of years ago. Mammals were at first small, and, as they evolved, many became insectivorous and arboreal in habits. Though numerous, they were unimportant during millions of years in comparison with reptiles and birds. By the Eocene period, however, some three millions of years ago, in association with the growth of suitable vegetation, the modern types of mammal had begun to evolve, and in the Miocene mammals had become the dominant race. The earliest definite evidence of pre-human or humanoid types dates back about a million years, and the present human race emerged about 200-300,000 years ago. As civilized man as we know him has only existed for some 6-7,000 years, it is clear that the acquisition of articulate speech resulted in a marvellous speeding up of the development of the dominant mammal.

The evolution of mammals has been rendered possible owing to their freedom from the physical hindrances I have referred to as likely causes of the evolutionary failure of the arthropods on the one hand and of the birds on the other.

The skeletal system of mammals has continued plastic and non-rigid, and their soft tissues have remained capable of wonderful and rapid functional adaptation.

The development of arboreal habits was probably the most important step towards future dominance, since this must either have incited, or have occurred in association with, the earliest development of the future organ of mind. Such habits would readily follow the evolution of sensori-motor and visual pallial connections.

THE MIND AND BRAIN OF MAMMALS.

The brain of mammals differs from that of animals lower in the scale, owing to the presence of a pallium of great complexity which replaces the simple roof of the lateral ventricle in birds, and in the higher members of the series entirely enfolds the caudate nucleus and eventually becomes highly convoluted.

The simple olfactory-optic connection of birds through the roof of the lateral ventricle becomes more complex, and has superadded to it, thus forming the pallium of the mammalia, sensori-motor connections from the organs of general sensation and to the musculature, and a direct afferent connection from the retinae. It is probable, if not certain that the former of these appeared the first, judging from the degree of development of the pallium in a human

fœtus of 18 weeks, in which the evolution of the cortex around the fissure of Rolando is considerably in advance of that around the calcarine fissure, since it is accepted that the order of evolution is repeated during individual development. There is no doubt, however, that the addition of the visual pallial connection must have given an enormous impetus to the activity of the pallial sensori-motor apparatus, which until then had to depend on olfactory incitation alone, although, as we know, this still remains in many mammals the dominant source of cerebral activity.

The development of this plastic sensori-motor and visual apparatus in the cerebral pallium not only distinguished the mammal from the bird, but provided the basis for the future development of the former.

The auditory apparatus later on acquired a pallial connection, but it was not until actual man appeared that the auditory-articulatory pallial mechanism, which is his characteristic feature, evolved.

In mammals generally, the olfactory lobe with its pallial mechanism has remained the most important source of activity through the general sensori-motor apparatus. In many, however, the visual connection to the occipital pallium has become of equal rank, and, in the line of man's ancestry, a high evolution of the visual and sensori-motor portions of the pallium entirely put in the shade the older olfactory mechanism and resulted in his emergence.

In civilized man the auditory-articulatory mechanism, with the function of articulate speech, was followed by the evolution of a visual-cheirographic apparatus with the function of reading and writing, and examples of the latter in crude form on stone have been preserved since probably the dawn of civilization.

During human evolution an enormous expanse of pallium has developed around and anterior to the several regions detailed, and *pari passu* the human mind has evolved to its present still primitive stage.

The furrow of Rolando, which is evidence of the ancient origin and connections of the pallium of this region in such cerebra, human and higher mammalian, as possess it, definitely divides the cerebrum into posterior, or receptive and associational, and anterior, or executive and inhibitory, portions. The calcarine fissure, on the lower lip of which the visual area first developed, is equally evidence of the only less ancient origin and connections of this part of the pallium.

It is not necessary here to enter into the details of the general structure of the pallium, but I may remark that the distinctive feature of the cerebral cortex of the mammalia is the existence of

an outer lamina or pyramidal layer of nerve-cells which increases in its degree of development and its complexity of structure with the rise of the mammalian scale. In man, not only is this lamina actually much deeper and more complex than in the anthropoid group, but, owing to his relatively enormous superficial expanse of cortex, a correspondingly great extension in the superficial area of the lamina is also present.

This crude generalization is remarkably accurate, irrespective of such modifying factors as are introduced by the gross differences in the type of evolution of the cerebrum which are found in the different orders of the mammalia.

Some mammals, *e.g.*, rabbits and hares, are born in an immature state, and the brains of the young are very embryonic in structure in comparison with those of the adults. Others, again, *e.g.*, guinea-pigs, are born adult, and do not vary except to increase in size, and this remark applies to their respective cerebra. Others, like pigs, have relatively few neurones in comparison with their size, but these are fully developed. Others again, like dogs, even when adult, possess brains which in parts remain very embryonic in structure.

Finally, the human brain is grossly immature at birth, and grows remarkably and rapidly to nearly the adult size during the first two and a half years of life. It then slowly evolves in stability and complexity, until adult life is reached. Even when employed to the maximum degree in the higher individuals of the race, it is certain that nevertheless the human brain is only working at a tithe of its potential capacity. It is equally certain, were it not for the facts that the human brain is of such relatively recent evolution, and that its most recent acquisition, the reading and writing mechanism, is only now for the first time being brought generally into activity, that it might well be said that few individuals of the race exercise their marvellous organ of mind in such a manner as to justify its possession.

When we consider the ancient mechanical caricature of voluntary thought which exists in the arthropods and the birds, and compare it with many aspects of human activity, we are irresistibly impelled, not to the idea that the lower animals think, but to the certainty that human beings in the mass do not. Fortunately for us, our recent origin, and the highly plastic state of our constituent parts which we inherit from our pre-human mammalian ancestry, will in the long run prove our salvation by enabling us rapidly to evolve from our present relatively infantile stage of mental development. In fact, instead of expressing concern at the small percentage of mental deficiency and dementia which we find amongst us, we

should rather feel regret that it is not larger. The greater the rapidity of our evolution and the plasticity of our higher organs—the more numerous naturally are the variations above and below the average—the more common must be individual genius and individual mental deficiency and dementia.

Mammals differ from the lower orders in two details of the greatest importance.

On the one hand, their body plasticity has enabled them by actual structural changes of gross character to accommodate to new habits. Contrary to what occurred in arthropods, reptiles and birds, where superficial changes alone resulted, and where the general mass structure of the animals has remained unaltered throughout millions of years, mammals have become so utterly diverse in mass structure in accordance with the development of new habits and functions that their general inter-relationships have frequently been found far from obvious even to the expert.

On the other hand, and also following this general plasticity of structure and capability of change under stimulation, mammals have gradually evolved the power of purposive, intelligent and self-conscious activity in consequence of the evolution of an organ for the reception, recording and association of sensations, and the consequent exhibition of intelligent activity and behaviour.

I shall as before choose the very commonest illustrations of this form of activity, as such can be verified by anyone. It is, however, necessary, in order to avoid misinterpretation, to emphasize that, in addition to their peculiar mammalian capabilities, mammals also possess the fundamental instinctive and mechanical activities of the lower orders, and perhaps at times in even higher degree than these.

The lower mammalia, in contra-distinction to birds, possess a cerebral pallium and the consequent potentiality of purposive behaviour, although this mechanism is little exercised. During the ascent of the mammalian scale behaviour becomes more definitely and complexly purposive. This may be studied in any mammal, but I shall choose a simple example here in the domestic dog, a fox-terrier in particular.

Compared with birds, dogs know their names and respond to them; they know one person from another by smell, and they possess numerous simple memories. A dog will anxiously watch its master dressing in the morning, though it does not really understand his movements. Every now and then it makes sudden darts away when, from some extra movement, it thinks that he is ready, although he may not be half-dressed.

Smell is the predominant sense. A terrier dog reacts strongly

to a rat-hole, and can with difficulty be got to obey the voice even when it is merely directing the animal to another source of scent. Once started, a dog follows the scent through all obstacles, and may be pricked, injured, or even blinded by thorns whilst doing so. The aim of the dog is to catch up the scent, and then the snap of the jaws completes the complex train of actions. If a dog starts its prey and loses it, it not uncommonly returns to the place where it found. This is not done in order to re-follow the scent, but owing to the memory of it, or the continuation of the sensation caused by it. For days afterwards a dog will return to the place where it has made a kill. This is obviously merely the recollection of the kill, which suggests the possibility of a repetition.

A trained dog can be controlled by the voice, the degree of control varying inversely with the strength of the special sensory stimulus present. A strong scent, and in particular the concurrence of visual stimulation, renders the animal quite uncontrollable.

Auditory or visual stimulation or both combined are of less importance than olfactory. The first may result in recognition as well as the second, but if it is at all possible the dog invariably verifies by the sense of smell. Even when it is provided with tasty morsels of food by its master, it invariably smells the first piece as a test of what it is.

Vision in dogs is relatively imperfect, and binocular vision is very poor. Careful study of a dog attempting to perform the act of binocular vision reveals a partial squint, movements of the eyes allied to nystagmus, and a wistful expression. The last is often explained as an attempt at comprehension, when in reality it is merely an effort to see.

The higher types of mammal readily respond to suggestion. Birds easily become inhibited if sensory stimulation is withdrawn, or if a special sense organ is exhausted, and a similar result occurs in lower mammals.

A dog, however, readily responds to direct suggestion. If a hole is pointed out, he at once reacts and tests it, and he obviously never imagines deception. On the other hand, as soon as the dog is certain that there is no prey in the neighbourhood, he ignores attempts to get him to work. This proves that the response is to the suggestion and not to the order.

Dogs of the same varieties differ individually from one another to a quite remarkable extent. They possess their individual qualities, and so differ from birds, which, apart from certain organic capabilities, are all alike even when of widely different varieties.

The above examples illustrate the low grade of mental activity in the dog compared with the human standard.

Purposeful action in them is of the highest grade, and purposive action is evolving. The animal can associate and act on the images of individual sensations, but there is reason to believe that each of these is individual and not composite. Rats are individual rats and not generic rats, and each man is a different known or not-known thing with the exception, in trained dogs, of the master.

Cats never reach this stage, and, even if they follow one from habit, the individual impulses and sensori-motor reactions are of greater relative strength. Cats are notoriously more difficult to train to leave other domestic animals alone than are dogs, and they can rarely or never be trusted.

Lower in the scale, relative capability of being tamed, as in the birds, is the sole characteristic feature. On the other hand, with the rise in the scale, as the elaborate experiments of Köhler (5) have proved, chimpanzees, in understanding, in the employment of roundabout methods, and in the use and making of implements, reach above the human two-year-old level in mentation.

In the child, however, appears the additional and human factor, the power of articulate speech, together with the capability of associating sensori-memorial units into common names, and later into abstract names. Owing to this capability, the human child begins an entirely new and higher evolution before it reaches the mental stage at which the chimpanzee, owing to the absence of the power of elementary generalization, permanently remains.

In comparing mind and brain we readily fall into the error of expecting function and structure to evolve equally. As a matter of fact, *the whole course of evolution shows that function results in an extraordinary development of structural provision for possible future function.* If we properly learn the lesson taught by the study of the arthropods, we can better understand the marvellous provision for mental functions which evolves in even the lower orders of the mammalia, and the almost human provision of the infant anthropoids. Structure, in other words, not only precedes function, but often proves needless or exuberant, and, as I have remarked earlier, existing structure at any time is a summary of past, present and future needs, and of remainders which never became functional. The mammalia, being more plastic in structure than the lower orders, more easily lose and gain in structure, but the same generalization holds for all.

Before proceeding, in order to be clearly understood, I wish to interpolate a definition of a *sensori-memorial image*, since I shall frequently employ this term. By this I mean the simulacrum of a former sensation or set of sensations which, at will or otherwise, can be imagined, and which occurs through excitation of the physical

imprint left on the cerebral cortex by such past sensation or sensations. Such images undoubtedly arise in many lower mammals as the result of definite sensations, and perhaps even as dreams, as when a sleeping dog growls at the recollection of recent experience. They probably, however, only arise at will in man, for, as is well known, the lower mammal goes to sleep or sits expectant in the absence of sensory experience.

The actual being with the possession of auditory and articulate speech having evolved, the symbolic mechanism of language enables mentation to progress by leaps and bounds. The marvelous performances of the mathematician, when he has introduced algebraic symbols in place of galaxies of numerals, and has learned to transform geometrical structure into algebraic formulæ, pale before the still more extraordinary results of the employment of the language mechanism.

When, as in modern civilized man, there is superposed a reading and writing mechanism, which renders the individual independent of his fellows, and enables all to explore the past, to improve their own means of thought by the enlargement and refinement of their vocabulary, and to supply their own quota to the future, the possibilities of the language mechanism as a means of thought become relatively illimitable.

This is not the place for a discussion of the cerebral mechanism of language, but I must not pass on without drawing attention to one or two fundamental truths.

Cerebral mechanism of language.—Voluntary thought, like all other forms of conscious activity, is a sensori-motor—or I had perhaps better say sensori-psycho-motor—function. Its necessary precursor is activity of the part of the pre-Rolandic psycho-motor mechanism which is concerned with the articulation of words. We may think aloud or we may think to ourselves, but in the latter case psycho-motor activity is equally present, even if it only expresses itself in a modification of respiration. This truth needs now neither proof nor discussion.

Words can be voluntarily recalled by this mechanism as definitely, and with almost as strong a retrograde stimulation of the sensory areas of hearing or sight, as is produced by normal stimulation through the sense organs. Voluntary visual memories are similarly aroused, but in this case by the activity of the part of the psycho-motor area concerned with movements of the eyes.

Even in dreamy states, when non-voluntary mentation progresses in a manner which is well known and is summarized under the law of association, the psycho-motor area, though not active, is standing by ready to guide. It is only during sleep that post-Rolandic

association of ideas can run riot, and criticism or voluntary control is in abeyance.

Recording of experience.—Experience is recorded by a number of cerebral mechanisms. In the first place, the actual results of sensory stimulation are recorded largely in a time-related manner in the various projection areas and zones with varying degrees of definiteness and completeness. On casual voluntary recall, the last of a series of related images is revived, and after that the image which, at the time of its implantation, was so deeply impressed as to possess the next degree of present capability of revival. For example, I visually recall at once the last cat I killed, and the first cat I saw my father kill, and his instruction not to tell anybody.

In the next place, experience is recorded through words and verbal complexes, which, when aroused, stimulate the sensori-projection areas, chiefly the visual. Here the recording is merely verbal, and not time-related, and it may be on a visual or auditory basis according to the personal peculiarities of the individual or on his training.

Lastly—and this is very important—the language mechanism is employed in the recording of what is commonly called “learning by heart,” where extensive verbal complexes, *e.g.*, actual portions of literary composition, calculations, stories, etc., are learned in a purely mechanical manner without the least necessity for the learner to appreciate their meaning. Few people appreciate what a large proportion of their apparent thinking is merely a variant of the repetition of things learned by heart, *e.g.*, repetition of gossip, scandal, dirty stories, etc. Here the individual in a semi-voluntary manner partly repeats what he remembers and partly confabulates when he does not remember, and a definite train of voluntary thought is absent. The person in fact for practical purposes has become a reflex machine, and his language mechanism is his master, not his servant.

This mode of the employment of the language mechanism is so common that one would despair were it not for the certainty that what one notices is only the tentative practice of a recently acquired mechanism, and not in any sense the method of employment which will result when the human mind has become more mature. The worker is the individual of the race who counts, and his descendants will eventually employ successfully the mechanism which the mass of talkers is merely playing with like a child with a new toy.

The general mind-record is time-related, apart from the record of the functional experience of the various parts of the body. The units are, however, superposed over and over, until in reality

what exists is an inchoate mass of sensori-memorial images of various grades and values. Naturally the visual-sensori-memorial record is the earlier and the more basal, and to a great extent the word-record is composed of psycho-motor word complexes, individual words or complexes of words, through their sensori-projection equivalents, arousing the various sensori-memorial images which supply them with meaning.

The record of mind-experience is thus not in any sense what could be called a *mind*, conscious or unconscious.

Recollection.—Based on the above description, the recalling of past experience may be summarized as follows :

In the first place, by the mechanical employment of certain psycho-motor portions of the language mechanism, there is the parrot repetition of previously learned verbal complexes, quite apart from the meaning these may possess. This may be seen when a child repeats pieces which it has learnt by heart or when the alphabet or the Lord's Prayer is repeated backwards.

Next, by spread to the visual and auditory parts of the language mechanism and thence to the lower association areas and their sensori-memorial images, the same recall may take place and be accompanied by a more or less clear appreciation of the meaning of the word-groupings, and followed by appropriate action, *e.g.*, recitation of poems or prose.

In the next place, by the activity of the cerebrum generally, series of sensori-memorial images are recalled owing to certain of these resembling one another or having formerly been acquired by association in time or place or both. Such a series can never be exactly repeated, as so many factors concur in causing modifications in the reproductivity of individual images that variations are bound to occur. The individual images flit across the mental field as a set of pictures which are not merely successive, since the attention flits to one or other and often repeats earlier images in its course. This statement can easily be verified if a recent experience is recalled in detail.

Lastly, similar cerebral activity occurs with still further involvement of the cortex, and the series of sensori-memorial images is helped out by words : to put this in another way, is described by the recollector in many respects as if he were a guide describing a cathedral to a tourist party. Here, not only are fallacies connected with the reproduction of sensori-memorial images present, but also the recollector, with the best of intentions, is liable to confabulation, to suppression, and even to deliberate invention. If the faintest element of suggestion or expectation exists, one or all of these is certain to occur.

Of the last two types, the latter may roughly be spoken of as a verbal or written description of the former.

Normal voluntary cerebral function, on the other hand, differs in the fact that both sensations and sensori-memorial images play a varying part in the general psycho-motor activity, and the extent to which words are employed depends entirely on the need for their use.

One detail of recollection is very noteworthy. An endeavour to recall a sensori-memorial image as a rule succeeds at once. An attempt to remember a word or to describe a sensori-memorial image often fails, and the recollection comes later on when the strain of effort is relaxed and the local disturbance due to it has subsided. A further example of the very basal character of experience compared with verbal description may be seen in the effort to recollect a recent event. Here a series of visual images rapidly flits over the mental field, but *words* are notably absent from the recollection, and what was said or heard is difficult to recall voluntarily in comparison with the easy reproduction of visual images.

Personality.—Personality is the intellectual element of mind or cerebral function, which exists in inverse proportion to the instinctive element common to mammals and to animals below them. With the rise in the mammalian scale the instinctive element becomes more and more subordinate to the personality and merely assists or debases the activity of the latter.

In most mammals the fundamental instincts swamp any possible difference between individuals of the species. A cat is an example. On the other hand, in the dog marked differences exist in different varieties, though these largely consist of ability in stated directions, *e.g.*, coursing, ratting, retrieving, etc.; nevertheless, the study of an old experienced dog and of a young one of the same variety readily demonstrates the presence of a definite if lowly-developed personality. It is also clear to anyone who studies dogs of a particular variety or even strain, that marked individual differences in capability are present. Such differences are naturally largely accentuated by training and experience.

The normal personality of a human individual at any time is the conscious activity of his mind and brain with the help of present experience, and of all such past experience as can be recalled voluntarily or aroused by association.

Our experience being recorded in time on the one hand, and from the aspect of our bodily parts on the other, the fact that time-related portions of experience and all knowledge of portions of our bodies in the popular sense may respectively become as it were blotted

out or switched off from the remainder, often as the result of nervous shock, is easily intelligible.

The former fact serves as the basis of multiple personality and also of permanent delusional states, and the latter as the cause of hysterical palsies.

That such incidents can occur is merely evidence that from the aspect of function, at any rate, if not necessarily of structure, the human brain is still far from being stably evolved.

That such conditions are easily modified or removed by suggestion, whether the belief induced be in reality true or false, indicates the same truth, and at the same time shows the fallacious nature of such "cures," since the individual has merely lost certain symptoms owing to auto- or hetero-suggestion, and has not in the faintest sense been relieved or cured of the basal cause of these.

The normal personality varies as changing experience results in the addition of recent sensori-memorial units and the fading or modification of earlier elements; and naturally the more highly evolved the personality the less it is liable to become subordinate to the instincts.

Grades of cerebral activity.—A particular cerebrum whose present functional capability is expressed as personality can function roughly in three grades of complexity, though naturally innumerable intermediate types exist.

In conscious voluntary control of cerebral association an orderly sequence of activity towards a definite end is evident. Unnecessary and undesirable sensori-memorial units are suppressed as they arise, and the activity "keeps to the point." Words are employed where necessary to combine the whole sequence together, and to express clearly the meaning desired or the end reached.

On the other hand, in the free association of day-dreaming, whilst a wayward train of images, arising under the generalization termed the law of association, is experienced, the conscious voluntary control or element of criticism is standing by to reject incongruities and impossibilities. As a rule, in day-dreaming words are not employed except as proper names unless the individual is recording or describing his experience.

Should the latter be the case, out of the mass of sensori-memorial images which is likely to be aroused under the influence of suggestion or expectancy, it would be difficult or impossible to avoid accidentally meeting with and selecting a suitable image. Free association, in fact, can only exist when the experience is truly passive, and then it is not possible accurately to record it. Records of experience under hypnosis are, to say the least, subject to grave suspicion, and are tainted from the source.

Lastly, in dreaming, separate units or series of sensori-memorial images arise irrespective of one another and unconnected. They are practically always visual and non-verbal. The most grotesque co-existences may occur, and there is little real order or sequence to be traced. There is an entire absence of criticism on the part of the subject, and everything is accepted as it occurs. Usually an explanation of the presence of many of the chief units can be found in recent experience. It is an interesting detail that the individual concerned, whilst he is often an actor in his dreams, at the same time seems to function as an observer even of his own acts. Incidentally this fact is useful evidence of the truth of the present description.

I will here interpolate a remark or two on so-called "free association" and on dreams.

Free association.—In the former, the accidental occurrence of a suitable relationship or coincidence readily results in a chain of such, which chain evolves the more easily and rapidly as the process proceeds, since each element aroused caused an increasing impetus towards the recollection of a similar or related one. This is due to the fact that the subject is conscious and therefore cannot possibly avoid exercising directive effort. This "free association" is in reality pure confabulation based on chain recollection and influenced by auto-suggestion.

Dreams.—With regard to dreams, from the time of Moses efforts have been made to discover in them a hidden meaning or interpretation, but such prolonged efforts merely exemplify the fear of, and respect for, the unknown, which is such a basal instinctive ancestral trait in all of us.

It is thus not surprising that an apparently simple theory of dream-interpretation should gain many followers. To imagine, however, that a set of unduly active neurone groupings, which owe their sensitivity to recent stimulation by experiences that can usually readily be recalled, and that are even often so hall-marked as to remove the possibility of mere coincidence, are always by their activity during sleep in some hidden way expressing a wish, is to give the cerebrum and the human mind credit for qualities which savour rather of the grotesque than the practical. I, at any rate, prefer the simpler obvious explanation. If I dream of the sea, I do not regard it as a hidden wish to be back again in my mother's womb, but merely remember that the day previously I was discussing swimming and methods of artificial respiration.

Feeling.—In the case of animals below mammals, the expression of feeling, instinct or urge in certain directions constitutes the highest function of the nervous system. The resulting behaviour

is highly purposeful, but it tends to run to extremes, and often becomes definitely harmful, *e.g.*, fleeing into danger, fighting to the death, the male severely injuring or even killing the female, etc.

In the lower mammals the same instincts are paramount, but in certain types they can be controlled by education and training. With the rise in the mammalian scale purposive activity replaces the merely purposeful, and when civilized man is reached, the instincts or basal feelings become more or less definitely subordinated to the purposive activity, which is the aim of evolution, and which in the first instance is expressed by the necessary obedience to law and order.

Although cerebral evolution is still so recent and so imperfect, it is nevertheless abundantly clear that purposive activity has now replaced instinctive or purposeful behaviour, and the instincts, instead of being paramount, now serve as modifiers of cerebral activity, inducing the best or the worst and preventing stereotypism and habit.

The whole object of education and training is to evolve reasoned purposive action in place of instinctive reaction to environment. In the many it is true that this purpose is still served but inadequately. This, however, is merely the necessary consequence of racial immaturity, and is no reason for the retrograde enthroning of the basal instincts which serves as the foundation stone of Freudian psychology. Rather should we hold fast to the lesson taught us by the history of our race, and regard the evolution of the basal instincts, under the influence of abstract thought based on action, into emotions and sentiments, and finally the moral sense, as a natural evolution from a lower to a higher form of feeling accompanying the purposive behaviour of a conscious voluntary agent.

MENTAL DISEASE AND RACIAL IMMATURITY.

The best existing example of our racial immaturity is of course mental disease. On the one side of the scale we have all grades of subevolution of the cerebrum, with mental counterparts ranging from the gross idiot, through the imbeciles and the mental deficient, to the unstable and occasionally sane, up to the occasionally insane. On the other side exist various grades of deficiently durable and dissipated cerebra with their mental counterparts in the several types and degrees of dementia.

Though this statement may appear at first sight to provide a blank future for the treatment and cure of mental disease it is not really the case. Truth never does harm, but always points the way ahead. Even if we have to care for our racial failures rather

than cure them, we can do much to decrease their severity by the employment of suitable environmental measures; and eventually, under the broadest possible conception of the conditions necessary for mental health, the provision of an environment and of general conditions of life more suitable to our race may become practicable. Much has already been done by general public health measures to reduce the incidence of accidental mental disease due to poison, trauma, etc.; and by looking forward to progress through steady solid work for better conditions of existence rather than for short cuts following picturesque discoveries we shall best further our ends.

“THE UNCONSCIOUS MIND.”

These remarks are particularly needed at the present time, when we are threatened with an exacerbation of world hysteria by the discovery of what I can only call the myth of the unconscious mind. This extraordinary conception is based on Freud's theory of dream-interpretation. I have already referred to the cause of dreams and need make no further remark beyond the obvious one that no two dream analysts are likely to hit upon the same interpretation, though, like palmists, they will naturally please their clients. “However, it does not matter much which method of interpretation you adopt, it will always do the patient good, because it will make him examine himself” (2) (p. 121). Poor patient! and poor analyst to have to descend to such fatuity!

The myth of the unconscious mind deserves a little more consideration. Does anyone know what it is? So far as my reading goes I have not come across a definition, and I cannot imagine any definition which would not be utterly contradicted by the considerations on mind and brain which I have laid before you.

The unconscious mind must exist fully formed before sensori-psycho-motor experience has been acquired, and even before the necessary cerebral structure for such functions has been evolved, because “analyses extending back into the days when the patient was in his mother's womb are a heroic undertaking” (3) (p. 224). No one can analyse what is not!

The unconscious mind seems truly to be a dreadful entity to be possessed of. “The conscience of the unconscious is so strict that it is apt, in accordance with the law of retaliation, to sentence the offender to suicide for crimes that have been committed only in the imagination” (3) (p. 242). I am glad that I have no unconscious mind, because I am certain that in imagination I am at least a ten-commandment man.

The unconscious mind is as uncorruptible almost as Robespierre. Gold is an abomination to it. “The unconscious, however, has so

profound a contempt for this yellow metal that, in dreams, gold is always a symbol for fæces " (3) (p. 173).

The unconscious mind possesses unfathomable depths, as may be instanced in the castration complex. " This complex, if it be discoverable at all, is apt to be so deeply buried that the patient is cured, or discontinues treatment, before we have disinterred it " (3) (p. 169).

The unconscious mind possesses abominable mechanisms, unworthy even of its discoverer, whose " theory of the Œdipus complex has supplied the energy which has driven Freud's triumphal car round the world " (3) (p. 115). For example, " When a woman who is sexually assaulted faints, the working of such a mechanism is obvious. She ought to resist to the uttermost for the sake of her ' honour.' The faint relieves her of this responsibility " (3) (p. 244).

Who, after reading such quotations as these, could be a Freudian unless he were possessed of an unconscious mind ?

CONCLUSION.

I have endeavoured in this lecture to detail the truth regarding mind and brain as I know it. This truth has slowly and with many setbacks been discovered during the past century or so. It is, however, only a small part of the whole truth, but it serves as a sure base on which to superpose additional knowledge.

Never was the study of psychology so actively prosecuted as at the present time. Innumerable workers in all departments of human activity are engaged in the collection and collation of facts, and in the evolution of theories.

The future is bright with hope, and, even if many theories turn out to be false and many facts prove to be valueless, the individual who has produced them, so long as he has worked honestly, is the better for what he has done.

In the words of John Milton (4), written some three centuries ago : " Where there is much desire to learn, there of necessity will be much arguing, much writing, many opinions ; for opinion in good men is but knowledge in the making."

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Vasomotor Reactions in Mental Disorders, with special reference to the Hæmoclastic Crisis. By ISABELLA McDOUGALL ROBERTSON, M.B., B.S.Lond. (From the Pathological Laboratory of the London County Mental Hospitals, Maudsley Hospital.)

INTRODUCTION.

The hæmoclastic crisis is the name given by Widal and his collaborators to the vasculo-sanguinary crisis which occurs following the ingestion of milk by patients with hepatic disease and in certain anaphylactic conditions, and was originally described as a test for liver inefficiency. Its occurrence has also been noted in certain cases of psychoses and epilepsy.

This present paper contains the results of investigations on the occurrence of the hæmoclastic crisis in 100 normal healthy adults, in 90 certified patients in Hanwell and Horton Mental Hospitals, and in 275 uncertified early psychotic and neurotic patients at the Maudsley Hospital. A series of investigations were then undertaken to determine the effect on the leucocytes of various physical and chemical stimuli, and to ascertain if possible the factors which govern the production of the hæmoclastic crisis and its mechanism.

The vasculo-sanguinary crisis, which Widal and his collaborators have termed the hæmoclastic crisis, is characterized by leucopenia, fall of blood-pressure, inversion of the leucocytic formula, hypercoagulability of the blood and diminution of the refractive index of the serum. To demonstrate the presence of the hæmoclastic crisis 200 grm. of milk is administered to a subject who has fasted for 5 hours, or better, since the previous night. The leucocytes and differential leucocytes and the blood-pressure are noted before the milk is taken and again at intervals of 20 minutes afterwards.

In the normal subject there is a hyperleucocytosis, while the blood-pressure either remains unaltered or tends to rise. In the subjects who show the hæmoclastic crisis the phenomena reach a maximum generally 40 minutes after the ingestion of milk, being succeeded after $1\frac{1}{2}$ hours by a phase of hyperleucocytosis and hypertension. Following the ingestion of milk a state of immunity occurs, which lasts for at least 3 hours.

As the technique is very important it will be described in detail.

TECHNIQUE.

In the investigation of the leucocytic changes occurring after ingestion of milk and other stimuli the following technique was employed.

The subject was fasting since the night before, but was allowed to drink a glass of water in the early morning. Some subjects were in bed, others were up, but in

each case remained at rest during the test and for half an hour beforehand. The temperature of the room was constant, and the test was done at approximately the same hour—10 a.m. in every case.

Blood was collected from a finger or thumb in a Thoma-Zeiss pipette, and the leucocytes enumerated by means of a Thoma-Zeiss counting chamber. The leucocytes were counted in microscopic fields, the size of the field being so adjusted that the number of leucocytes in 40 fields multiplied by 10 gave the number of leucocytes in 1 c.mm. of blood. If the leucocytes were not evenly distributed throughout the fields the drop was discarded.

No pressure or preliminary cleaning of the finger with ether, etc., was employed, and a sharp bayonet needle was used as a pricker. This proved to be quite painless. The first drop of blood was lightly removed and the flowing blood collected in the pipette. In all the earlier tests two pipettes were used and the results checked. The same finger was used throughout the test, but no two pricks were actually on the same spot.

With these precautions it was found to be possible to obtain from the same finger leucocyte counts at intervals of 20 minutes for 1 hour which showed less than 2·5 *per cent.* variation. During periods longer than one hour variations in the leucocytic level may occur irrespective of any stimulus. Montagnani⁽¹⁾ notes that during a period of 2 hours, during which there is no stimulus, the leucocytes remain unaltered. Mauriac and Carbonat⁽²⁾ find throughout the day a physiological variation of the leucocytes, which is less marked in the morning. Furthermore, the leucocytic level in the same individual at the same time, 10 a.m., on different days is subject to variations.

The experimental error, worked out in a large number of cases, was found to be less than 2 *per cent.* The finger was used in preference to the ear, as it was found to be easier to obtain flowing blood without applying any pressure from the finger than from the ear. Pressure applied to the finger by means of a tourniquet was found to alter the number of leucocytes by as much as 50 *per cent.* The application of either heat or cold, or an alteration in position of the body from the horizontal to the vertical, was found to alter the leucocyte level. Tinel⁽³⁾ finds that local heat or cold alters not only the number of leucocytes, but also the differential formula. Also, the position of the hand and vasomotor changes influence the number of leucocytes.

Sonden⁽⁴⁾ states that in subjects who showed a leucopenia after milk he has obtained a leucopenia when there has been no stimulus other than the prick, and *vice versa*, a leucocytosis in those who showed a leucocytosis after milk.

The following table shows 4 cases selected at random from 10 who were investigated. The intervals between the enumerations are 20 minutes:

		Initial.			20 mins.	40 mins.
A.	Finger	11,900	.	Milk	9,000	8,000
	Finger	8,700	.	Nil	8,400	8,500
	Ear	8,550	.	Nil	8,250	8,400
B.	Finger	12,050	.	Milk	9,450	10,600
	Finger	9,500	.	Nil	9,650	9,750
	Ear	9,000	.	Nil	8,900	9,050
C.	Finger	9,100	.	Milk	10,300	11,000
	Finger	7,150	.	Nil	7,350	7,300
	Ear	8,400	.	Nil	8,650	8,700
D.	Finger	8,400	.	Milk	9,000	9,300
	Finger	8,500	.	Nil	8,400	8,550
	Ear	7,950	.	Nil	8,000	7,850

The number of leucocytes varies in the finger and in the ear, though without any stimulus the level remains practically unaltered. Mironesco⁽⁵⁾ has noted a marked difference between the leucocytes in blood from the ear and from a vein in the neck, while Ruef⁽⁶⁾ notes a difference between the leucocytes of the peripheral blood and that of the internal organs.

The effect of drinking 200 c.c. of cold water under the same conditions as the milk test was investigated in 10 subjects. The leucocytes and the differential counts showed no alteration. The blood-pressure remained stationary in 8 cases and rose slightly in the other 2.

THE HÆMOCLASTIC CRISIS IN NORMAL SUBJECTS.

Two hundred grammes of cold milk were administered and drunk as rapidly as possible. Gautier (7) finds that too long an ingestion time falsifies the results. One hundred normal healthy subjects, male and female, of all ages from 17 to 62 and with no history of gastric or hepatic disease were examined. The first 20 cases were thoroughly examined—leucocytes, differential leucocytes and blood-pressure—at intervals of 20 minutes during the hour following ingestion of 200 grm. of milk. In 10 cases leucocyte counts were taken at intervals of 10 minutes throughout the hour. The remaining 70 cases were examined at 20 minutes and again at 40 minutes after the milk, and only the leucocytes were investigated.

In every case a leucocytosis was found, the average figures being approximately 7,800, 8,900, 9,600, 9,100 throughout the hour. The lowest rise was from 8,000 to 8,400 and the highest from 7,200 to 12,800. The maximum rise was generally at 40 minutes, after which the leucocytes decreased in number. In a few cases the maximum rise was at 20 minutes, and in a few at 60 minutes.

The differential counts showed generally a relative and absolute increase of polynuclear leucocytes, and an absolute increase, but relative decrease of lymphocytes. These findings agree with those of Dresel and Lewy (8). In 3 of the subjects examined the relative proportions of the different cells remained practically unaltered. The large mononuclear cells showed no constant change.

In examining the blood-films 1,000 cells were counted, and the basophil, eosinophil and transitional cells neglected as the percentage was too small to justify any definite statement. Worms and Schreiber (9) also note this increase of the polynuclear leucocytes, and a slight fall followed by a rise of the lymphocytes in post-alimentary leucocytosis.

The following table gives a few examples of the leucocytosis observed in the normal subject:

	Initial count.	20 mins.	40 mins.	60 mins. after milk.
1	. 7,600 .	9,200 .	10,100 .	9,500
2	. 7,200 .	8,900 .	9,600 .	9,400
3	. 7,600 .	10,100 .	9,800 .	9,600
4	. 8,400 .	8,900 .	9,200 .	9,300
5	. 7,100 .	9,200 .	10,300 .	10,500

The systolic and diastolic blood-pressure was measured with Pachon's sphygmomanometer. In the majority of the cases there was no alteration in the blood-pressure, but about 40 *per cent.* showed a rise of 2-4 mm. Hg.

Feinblatt⁽¹⁰⁾, investigating the alimentary leucocytosis after 200 grm. of milk in 80 normal fasting subjects, finds a leucocytosis in every case. His average figures were 7,379 before and 8,856 30 minutes after drinking the milk. Wilson⁽¹¹⁾ also found a leucocytosis after milk in all his 30 normal subjects.

The reaction of the normal fasting subject to ingestion of milk is, therefore, a leucocytosis which is at its maximum after 40 minutes, and is chiefly a polymorphonuclear leucocytosis, accompanied by either a rise or no alteration in the arterial blood-pressure.

THE HÆMOCLASTIC CRISIS IN PSYCHOSES.

Dementia præcox.—Fifty well-marked cases of dementia præcox, of all types and of all ages, male and female, were investigated. In 20 cases leucocyte counts, differential counts and blood-pressure were noted. In the remaining 30 leucocyte counts alone, 20 and 40 minutes after milk, were taken as criteria.

Forty-seven cases (94 *per cent.*) gave a definite hæmoclastic crisis following ingestion of 200 grm. milk. In 35 cases (70 *per cent.*) this leucopenia was well marked, with its maximum at 40 minutes. In 12 cases (24 *per cent.*) the leucopenia was well marked, but the maximum leucopenia was at 20 minutes, the level at 40 minutes being below the initial level. In 3 cases (6 *per cent.*) a leucocytosis followed ingestion of milk.

Initial count.		20 mins. after milk.		40 mins. after milk.
7,200	.	6,100	.	5,600
8,300	.	7,900	.	6,200
6,600	.	5,900	.	4,600
7,400	.	4,300	.	3,800
6,850	.	5,500	.	6,000

In the cases where the blood-pressure was noted, a fall, varying from 3–12 mm. Hg., was recorded in 14 of the 20 cases. The remaining 6 cases either remained stationary or showed a very slight fall.

Melancholia.—Twenty cases, acute and chronic, of varying ages, male and female, were examined. In these cases leucocyte counts were taken 20 and 40 minutes after milk, and in 5 cases blood-films were also taken.

Fifteen cases (75 *per cent.*) gave a hæmoclastic crisis, and of these 8 (40 *per cent.*) gave a well-marked leucopenia with its maximum at 40 minutes. The remaining 7 cases (35 *per cent.*) showed a leucopenia with its maximum at 20 minutes.

Three cases showed a leucocytosis, and 2 cases gave an indeterminate result following milk: (1) 8,000, 8,850, 6,450, and (2) 5,050, 6,600, 4,500. These cases were repeated two days later and gave a similar result, though the actual figures were not the

same, the level being slightly higher in one case and lower in the other.

Chronic mania.—Twenty cases were examined, all females, and of varying ages. Eleven cases (55 *per cent.*) showed a hæmoclastic crisis, and of these 7 showed the maximum leucopenia at 40 minutes, 4 at 20 minutes. Four cases showed a leucocytosis and 4 an indeterminate result after ingestion of milk.

In one case the leucocytic level remained unaltered. Several of these cases were later repeated, and showed the same type of reaction to the same stimulus.

General remarks.—In examining the blood-films 1,000 cells were counted. Eosinophil and basophil cells were not included, as the percentage of these cells is so small that it is not possible to give an opinion where comparatively so few are counted. There did, however, appear to be an increase of eosinophils in cases which manifested the hæmoclastic crisis.

The differential counts showed an absolute and relative decrease of polynuclears, a relative and in some cases an absolute increase of lymphocytes, and an absolute and relative increase of large mononuclears. This change was comparatively slight in some cases, well marked in others, but in no case was there absolute inversion of the formula, *e.g.* :

				Polynuclears.	Lymphocytes.	Mononuclears.
				%	%	%
Case 1	{	7,800	.	71	.	27
		7,200	.	68	.	29
		6,200	.	64	.	32
Case 2	{	7,200	.	76	.	24
		6,100	.	55	.	37
		5,800	.	54	.	39

Widal states that during the apogee of the hæmoclastic crisis there is an inversion of the formula. Tinel (¹³) finds that the leucopenia involves chiefly the polynuclears and mononuclears, and causes an inversion of the formula.

Eisenstadt (¹³) finds, on the contrary, that the lymphocytes are chiefly concerned in the leucopenia, the polynuclears remaining stationary. Worms and Schreiber (¹⁴) also note a fall of lymphocytes with a rise in large mononuclear cells. Holzer and Schilling (¹⁵), however, find a fall of polynuclears, relative and absolute, a relative increase but absolute decrease of lymphocytes, and a fall of mononuclears.

A marked eosinophilia has been observed by Schiff and Stransky (¹⁶). Schiff (¹⁷) finds this eosinophilia also in conditions of anaphylactic shock. In the hæmoclastic crisis he finds a relative and absolute increase of mononuclears (¹⁸) and an increase of the young forms of polynuclear leucocyte combined with a disappearance of the older forms (¹⁹). No evidence of this was noted in these investigations. These variations he considers due to reactions in the deep hæmopoietic organs and not to mechanical action alone, *cf.* Tinel (²⁰). Dresel and Lewy (²¹) in their cases that exhibit the hæmoclastic crisis find the lymphocytes considerably decreased.

The ingestion of 200 grm. of milk is followed by the hæmoclastic crisis in practically all cases of dementia præcox cases examined,

in 85 *per cent.* of the melancholias, and in 75 *per cent.* of the chronic manias, if we include amongst the positive results those who show an indeterminate reaction. The majority of these cases showed a differential variation of the leucocytes, and over 50 *per cent.* also manifested a fall of arterial blood-pressure.

The initial leucocyte level and the initial blood-pressure was noted in each case and compared, and no correlation was found between either of these factors and the response to the ingestion of milk.

No correlation was found between the condition of the hands, *e.g.*, acrocyanosis, and the type of response.

The physical condition of the subject, age, and duration of the mental symptoms was investigated, but again there was no correlation between any of these factors and the presence or absence of the hæmoclastic crisis. Very few of the patients investigated had a previous history of dysentery or of any gastric or intestinal disorder.

Generally they appeared to be uninterested in the test; very few were excited or resistive, and they drank the milk quietly and quickly.

In mania and anxiety states Tinel⁽²²⁾ has observed a marked hæmoclastic crisis during and preceding the paroxysms. During the intervening period this reaction disappears. Susceptibility corresponds to a special state of vago-sympathetic equilibrium, the vago-tonic state exaggerating and the sympathetico-tonic suppressing the influences which produce the hæmoclastic crisis.

Sonden⁽²³⁾ finds that ingestion of milk is followed by the hæmoclastic crisis in the few cases of dementia præcox and manic-depressive insanity he has investigated. Dresel and Lewy⁽²⁴⁾ consistently find leucopenia following ingestion of milk in paralysis agitans.

EARLY PSYCHOTIC CASES AND THE HÆMOCLASTIC CRISIS.

The cases examined were a series of 275 patients admitted to the Maudsley Hospital for early uncertified mental disorders. They varied from the milder neuroses to the more acute forms of mental trouble. The acute psychotics were mainly of the depressed or stuporose types, because of the difficulty of dealing with the manic, the agitated and the impulsive. A large number of adolescents of the dementia præcox type were included, together with depressed cases of all ages.

Of these cases, 135 showed a hæmoclastic crisis after milk, 106 reacted by a leucocytosis and 34 showed an indeterminate reaction, *i.e.*, a leucocytosis at 20 minutes followed by a leucopenia at 40 minutes, *e.g.*, 7,600, 9,100, 6,200. Many of these indefinite cases were repeated within a few days and in each case the same type of response was obtained. A large number of all these cases were examined some months later, and, excluding the indeterminate cases, only 2 were found to have a different type of response, both showing

the hæmoclastic crisis on the second occasion. About 50 *per cent.* of the indeterminate cases showed the hæmoclastic crisis on the second or third examination.

These patients varied in age from 7 to 70. Examination shows that 65 *per cent.* of the cases exhibiting hæmoclasia were between 15 and 35, and 23 *per cent.* between 35 and 50; that 69 *per cent.* of the indeterminate cases were between 15 and 35, and 25 *per cent.* between 35 and 50; and that 43 *per cent.* of those who reacted normally were between 15 and 35 years, while 35 *per cent.* were between 35 and 50.

Examination of the physical condition of these patients has failed to elicit any underlying factor which is common to all of one group or another. Amongst these numbers were 10 cases of general paralysis, 6 of whom reacted normally and 4 by a hæmoclasia, and 15 cases of encephalitis lethargica, of whom 13 showed a marked leucopenia after milk and 2 a leucocytosis.

A consideration of the subsequent progress of 65 of the cases who manifested the hæmoclastic crisis shows that 16 are reported as better, 13 *in statu quo*, and 36 as worse. Of 17 indeterminate cases, 7 are reported as better, 3 *in statu quo*, and 7 as worse. The reports of 66 cases who gave a normal reaction show that 47 are better, 12 *in statu quo*, and 7 worse. That these figures are probably inaccurate is obvious, but such evidence as there is tends to show that there is some prognostic value in the presence or absence of the hæmoclastic crisis in these cases.

Before proceeding to investigate further the hæmoclastic crisis and its mechanism, the effect of glucose on the leucocytic variation was investigated.

HÆMOCLASIA AND GLUCOSE.

The leucocytic changes following the ingestion of 50 grm. of glucose were investigated in several of the subjects. Normal subjects reacted in all cases (4) by a leucocytosis, this leucocytosis being less than the leucocytosis which followed ingestion of milk.

Six subjects who had responded to ingestion of milk by a marked leucopenia were given glucose. Of these, 5 gave a leucocytosis, 1 a leucopenia and glycosuria. Five diabetic patients who had been given glucose for blood-sugar estimations and who showed a typical blood-sugar curve, also showed a well-marked leucopenia at 20 and 40 minutes after ingestion of the glucose.

Widal, Abrami and Iancovesco⁽²⁵⁾ in 34 diabetics found a hæmoclasia following administration of glucose in all but 1 case, and in 23 cases with less than 10 grm. of glucose. Of these cases less than 50 *per cent.* showed a hæmoclasia after milk. Worms and Schreiber⁽²⁶⁾ and Wolf⁽²⁷⁾ note this hæmoclasia following administration of glucose to the diabetic, and also observe that this leucopenia

is chiefly at the expense of the polynuclear leucocytes. Zehntner⁽²⁸⁾ finds no correlation between hæmoclasis after milk and that after glucose in the same subject, and doubts therefore the protein specificity of the hæmoclastic crisis. Ian Covesco⁽²⁹⁾ was able to produce both glycosuria and the hæmoclastic crisis in normal subjects by hypodermic injection of phloridzin.

Widal finds that 50 grm. of lactose or 30 grm. of butter do not give rise to a hæmoclastic crisis in his liver cases, but that 8 grm. of dry casein determine a crisis which is both rapid and intense. Somjen⁽³⁰⁾, however, states that he has obtained a hæmoclastic crisis after ingestion of butter.

Glucose does not, therefore, produce hæmoclasis in the psychotic patients as milk does, but in the diabetic it produces a hæmoclastic crisis which is comparable with the hæmoclastic crisis produced by milk in the psychotic cases.

VASO-CONSTRICTION AND THE HÆMOCLASTIC CRISIS.

The changes described after ingestion of milk and glucose occur in the peripheral capillary blood, and are considered by some workers to be due to peripheral vaso-constriction and vaso-dilation. Two investigations were therefore carried out—(a) a simultaneous investigation of the capillary and venous leucocytes, and (b) a simultaneous investigation of the erythrocytes and leucocytes. Thirdly, the peripheral circulation was investigated in an endeavour to demonstrate whether or not there was any alteration in the blood-flow in the hand during the occurrence of the hæmoclastic crisis.

Finally the influence of heat and cold, and reflex heat and cold on the leucocytes was investigated in both normal and abnormal subjects.

Capillary and venous leucocytes.—The relation between the leucocytes in the capillary and venous blood was investigated.

Glaser and Buschmann⁽³¹⁾, investigating simultaneously the leucocytes in capillaries and veins, find a capillary leucocytic fluctuation in 70 *per cent.* of their subjects and in only 25 *per cent.* a venous leucocytic fluctuation. Bouche and Hustin⁽³²⁾, after administration of serum, find during the first half-hour that the capillary leucocytes are decreased, the venous leucocytes increased (the sympathetic phase). After 30 minutes the capillary leucocytes are increased, those in the vein decreased (the parasymphathetic phase).

Six normal subjects and 6 subjects who showed the hæmoclastic crisis after milk, and all of whom had easily accessible veins, were selected. Blood was taken from the finger and vein simultaneously, from the latter by means of a short wide-bored needle. In this way flowing venous blood was obtained. Thirty minutes after administration of 200 c.c. of milk leucocyte counts were again taken from the finger and from the vein. On each occasion two pipettes were used and two blood-films taken, and where the error between the two results was above 2.5 *per cent.* the results were discarded. The following table gives the results of 4 cases :

	Capillary leucocytes.				Venous leucocytes.		
	*	†	‡		*	†	‡
Subject 1 .	13,450 (72	26	2)	.	13,100 (67	32	1)
	15,250 (76	22	2)	.	14,200 (70	29	1)
Subject 2 .	8,700 (70	29	1)	.	8,200 (63	35	2)
	10,000 (77	22	1)	.	9,400 (70	28	2)
Subject 3 .	8,750 (67	31	2)	.	7,500 (67	32	1)
	7,500 (61	36	3)	.	6,650 (60	38	2)
Subject 4 .	8,600 (69	26	5)	.	7,150 (64	35	1)
	6,450 (63	30	7)	.	6,150 (60	37	3)

Percentages: * Polynuclears. † Lymphocytes. ‡ Mononuclears.

The other cases showed similar results.

The leucocytic variation, therefore, is similar in capillary and venous blood following ingestion of milk. The capillary blood is richer in leucocytes than the venous blood, and the variation in the actual numbers of leucocytes is greater in practically every subject. The polynuclear leucocytes are more numerous in the capillaries, the lymphocytes more numerous in the veins.

A leucocytosis or a leucopenia following ingestion of milk is not, therefore, a purely peripheral phenomenon, but occurs also in the venous blood. The percentage variation of the leucocytes, however, is greater in the peripheral than in the venous blood.

Relation between the variation of leucocytes and erythrocytes.—A hæmatokrit was used for the estimation of the erythrocytes.

A piece of capillary tubing, about 20 cm. in length, was bent to form a U-tube. Mercury was drawn in to fill the bend of the tube and then a column of 2.5 per cent. potassium bichromate solution, approximately 2 cm. in length. This column was then accurately measured under the reading microscope. The blood was then drawn into the limb of the U-tube by means of rubber tubing attached to the opposite limb, and a column of blood of approximately 5 or 6 cm. obtained. The end of the tube was cleared of any excess of blood and the tube immediately placed in the centrifuge and completely centrifugalized. The column of red cells was then read off and the reading of the column of serum and bichromate solution noted, the small column of white cells being disregarded. The original length of the bichromate column was deducted and the length of the column of serum obtained. The method applies only to alterations in the proportion of cells and serum in the same individual where the size of the erythrocytes does not vary.

This method was found to be much less laborious and quite as accurate as the enumeration of the erythrocytes by means of the counting chamber.

The erythrocytes and leucocytes were investigated in 15 subjects. The leucocytes and erythrocytes were counted before and 20 minutes after the ingestion of milk, and simultaneously the percentage alteration of the erythrocytes was estimated by means of the hæmatokrit.

In subjects who responded to the ingestion of milk by a

leucocytosis there was an increase in the percentage of erythrocytes, and *vice versa* a leucopenia was accompanied by a decrease in the percentage of erythrocytes. Comparing these percentage variations of the leucocytes, it was found that the percentage alteration of the erythrocytes was less than the alteration of the leucocytes.

Glaser⁽²³⁾, investigating simultaneously leucocytes and erythrocytes, finds that increase of erythrocytes follows increase of leucocytes and *vice versa*. Kāgi⁽²⁴⁾ and Platz⁽²⁵⁾ also find an increase of erythrocytes after adrenalin injection, but comparatively slight (15 *per cent.*) compared with the increase of leucocytes (100–200 *per cent.*). Baráth⁽²⁶⁾ also notes an increase of erythrocytes after pilocarpine, smaller, however, than the leucocytic increase; while Platz⁽²⁷⁾ finds the erythrocytes stationary though the leucocytes are increased.

Blood-flow in the hands.—As it seemed that it might be possible to demonstrate some alteration in the amount of blood in the peripheral vessels of the normal and abnormal subject, the blood-flow in the hand was estimated by means of Stewart's calorimetric method⁽²⁸⁾. The experiment was carried out in a room of constant temperature. The amount of heat given off by the hand to the calorimeter was estimated, and when this became constant readings were taken for 10 minutes and then 200 c.c. of milk were given. Readings were taken for 25 minutes after ingestion of the milk, and the amount of the blood-flow in grammes per 100 c.c. of hand substance per minute calculated.

Eight subjects, 4 normal and 4 abnormal, were investigated, and in each case it was found that administration of milk was followed by a decreased blood-flow in the hand, the maximum decrease being reached generally about 20 minutes later, and the blood-flow increasing steadily at 25 minutes.

The following 4 cases show the results obtained in tabular form :

	Initial blood-flow.	5 mins.	10 mins.	20 mins.	25 mins. after milk.
Normal 1 .	10·93	8·34	5·91	4·98	6·37
„ 2 .	9·22	4·95	3·42	4·43	6·98
Abnormal 3	7·05	5·46	5·76	5·2	5·24
„ 4	6·77	2·91	3·7	2·97	4·15

The figures represent the blood-flow per minute in grammes per 100 c.c. of hand substance.

Influence of heat and cold.—The effect of local heat and cold on the leucocytes was investigated. Six normal subjects and 6 cases who manifested a hæmoclastic crisis after milk were examined. All were found to react in a similar manner. Instead of hot and cold water, mercury heated in a water-bath in one case, and cooled in iced water in the other, was used to avoid any manipulation of the finger. Blood was taken from the finger, and the finger then plunged

into the beaker of mercury and heated. On withdrawing the finger a second drop of blood was obtained. Similarly the ice-cold mercury was used. A leucocytosis followed the heating of the finger and a leucopenia followed the cooling, *e.g.*, initial level 9,250, after heat 10,500, after cold 8,350. In one or two cases a comparatively small reaction was obtained, *e.g.*, initial level 8,700, after cold 8,100, but generally the reaction was well marked.

If the heat applied to the finger were great enough to be painful a leucopenia replaced the leucocytosis. If the finger were kept in the cold mercury for 2 minutes or longer a leucocytosis replaced the leucopenia, and the finger was found to be reddened, instead of white, and to feel hot. Buerger (³⁹) has noted that after transitory contraction the capillaries are prone to dilate on the action of cold. Nägelsbach (⁴⁰) considers this secondary vaso-dilatation after cold to be of teleological significance.

Effect of reflex heat and cold.—The effect of reflex heat or cold was investigated in 10 normal subjects. The leucocyte count was noted in the right hand and the left hand was then plunged into hot water, after which the leucocyte count in the right hand was again noted. The leucocytes were found to be unchanged. Similarly the effect of reflex cold was investigated after plunging the arm into ice-cold water. As the result of reflex cold a marked leucopenia was observed. G. N. Stewart (⁴¹) finds a marked reflex vaso-constriction following immersion of the hand in ice-cold water.

Eight subjects who responded to the ingestion of milk by a hæmoclasic crisis were examined in the same manner. Six of these, as the result of reflex heat, responded by a leucocytosis, two by a leucopenia. As the result of reflex cold a marked leucocytosis was observed, contrary to what was noted in the normal subject:

		Cases.		Controls.	
1.	Reflex heat . .	13,250	14,750 .	9,900	9,800
	„ cold . .	13,750	15,550 .	9,950	9,200
2.	„ heat . .	5,400	6,300 .	10,900	10,850
	„ cold . .	5,350	5,950 .	10,450	9,300
3.	„ heat . .	12,750	14,350 .	8,100	8,300
	„ cold . .	13,150	14,700 .	8,700	7,450

As the result of these investigations it has been shown that the leucopenia of the hæmoclasic crisis is not confined to the periphery, but occurs also in the venous blood, though not to quite the same extent. The erythrocytes also show a diminution corresponding to a leucopenia, and *vice versâ* an increase corresponding to a leucocytosis. These erythrocytic changes, however, are proportionately

much smaller than the leucocytic changes. This disproportionate increase or decrease of leucocytes and erythrocytes following injection of drugs has already been noted.

The amount of blood flowing through the hand was decreased in every case, and no results suggestive of vaso-constriction on the one hand or vaso-dilatation on the other were obtained.

Local heat or cold, which produces a local vaso-dilatation or vaso-constriction, was found to act in a similar way in the two types of cases—those that show hæmoclasia after milk and those who do not do so.

Reflex cold, however, caused a vaso-constriction in the normal, a vaso-dilatation in the abnormal, while reflex heat was without effect on the normal, but caused a vaso-dilatation in the majority of the abnormal subjects. The same time elapsed between the reflex stimulus and collecting the blood in all the subjects. The results stated are therefore merely comparative under the same experimental conditions.

THE SYMPATHETIC SYSTEM AND THE HÆMOCLASTIC CRISIS.

The influence of the sympathetic system was investigated by means of injections of sympathetico- and para-sympathetico-mimetic drugs, such as adrenalin, atropine and pilocarpine. Before proceeding to the effect of these drugs on the hæmoclastic crisis their effect on the various types of subject, normal and abnormal, was investigated. The dose of adrenalin which was harmless and at the same time gave an adequate response was found to be mij of 1-1000 adrenalin chloride, that of atropine gr. $\frac{1}{100}$, and that of pilocarpine gr. $\frac{1}{20}$. As the following results and consideration of the literature will show, adrenalin invariably produced a leucocytosis, atropine generally a leucocytosis, and pilocarpine generally a leucocytosis, but sometimes a leucopenia.

The effect of the ingestion of milk following injection of the sympathetico-mimetic drugs was investigated in 8 carefully selected subjects, 4 of whom had repeatedly responded by a leucocytosis, 4 by a leucopenia to ingestion of milk. After various experiments, it was found that by administering the milk 10 minutes after the injection of the sympathetico-mimetic drug, it was possible to obtain curves of the leucocytic levels in which it was comparatively easy to note the effect of the drug on the hæmoclastic crisis.

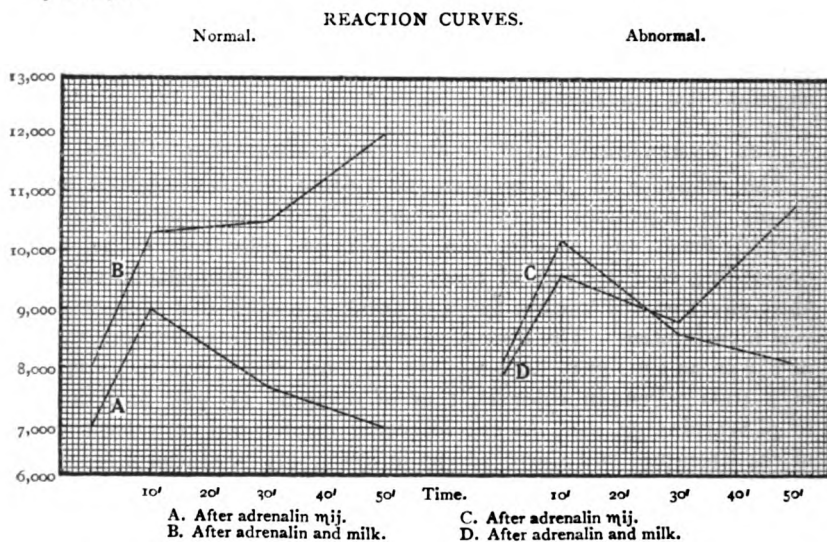
In the case of pilocarpine other time intervals were also taken, but without any very definite findings.

Effect on leucocytes of adrenalin and pilocarpine.

Walterhofér⁽⁴¹⁾ and Kāgi⁽⁴²⁾ find that after subcutaneous injection of adrenalin there is a leucocytosis, which is maximum at 15-30 minutes, the increase being due

chiefly to the lymphocytes during the first 30 minutes, later to the polynuclears. Grimm (⁴⁴) also finds this two-phase reaction, but states that it does not occur in children of a lymphatic condition. Schenk (⁴⁵) finds that the leucocytosis after adrenalin is due to a considerable absolute and relative increase of lymphocytes. Hatigan (⁴⁶) and Hess (^{47, 48}) find that the maximum leucocytosis after subcutaneous injection of adrenalin occurs 20 minutes later. Platz (⁴⁹) finds that the erythrocytes are also increased after adrenalin injection, subcutaneous or intravenous, and considers it to be due to squeezing out of the plasma from vessels. In addition to the increase of lymphocytes he also notes an increase of eosinophiles (⁵⁰).

Harvey (⁵¹), giving small intravenous doses of pilocarpine to rabbits, found a leucocytosis after 10 minutes. This was due almost entirely to lymphocytes and was of purely mechanical origin. Schenk (⁵²) also finds this lymphocytic increase. Platz (⁵³), with varying doses of pilocarpine, found sometimes an increase, sometimes a decrease, the maximum changing occurring after 15-25 minutes. He found that the polynuclears were chiefly diminished, the lymphocytes chiefly increased, but less so than after adrenalin (⁵⁴). Báráth (⁵⁵) notes a leucocytosis, followed by a leucopenia which is evident about 30 minutes after the injection of pilocarpine.



Twenty-four subjects were selected—6 normal, 6 cases of well-marked dementia præcox, 6 melancholias and 6 chronic manias. mij of 1-1000 adrenalin were injected subcutaneously and the leucocyte count noted before and 15 minutes after the injection. In every case a leucocytosis was found, varying from 10 per cent. to over 100 per cent. and irrespective of the type of subject. Similarly, leucocyte counts were noted before and 15 minutes after an injection of gr. $\frac{1}{20}$ pilocarpine. Some reacted by a leucocytosis, some by a leucopenia, and again no difference in reaction was observed in the different types of case. Raphael (⁵⁶) in 11 well-marked cases of dementia præcox was unable to find any evidence of vago-tonic or sympathetico-tonic reaction to pilocarpine or adrenalin.

Adrenalin, m ij.

Normals.		Dementia præcox.		Melancholias.		Manias.	
9,200	13,600	9,150	14,550	9,050	13,150	7,150	8,450
7,200	8,950	8,150	9,450	9,450	10,900	9,450	13,800
10,950	13,800	3,650	8,500	7,600	8,950	9,850	13,900
5,000	8,500	6,300	9,800	8,400	13,100	9,150	16,000
7,800	13,700	6,750	11,150	8,000	10,200	10,950	17,350
9,050	13,250	7,600	10,150	12,850	23,500	9,850	11,450

Pilocarpine, gr. $\frac{1}{16}$:

Normals.		Dementia præcox.		Melancholias.		Manias.	
6,900	7,500	7,800	7,650	10,650	12,600	5,850	7,800
9,100	10,400	10,350	11,050	7,000	7,750	8,750	9,000
8,750	7,950	7,900	8,100	5,150	6,400	12,100	9,900
7,600	8,300	8,050	10,900	6,350	7,950	9,650	8,650
8,400	8,100	8,650	7,850	7,800	7,650	10,850	11,800
9,350	10,550	6,800	7,250	12,750	15,450	8,900	9,450

These figures demonstrate that there is no difference between the normal and the abnormal in the leucocytic reaction to injection of adrenalin and pilocarpine, and no evidence, therefore, of vago-tonic or sympathetico-tonic reactions.

Consideration of the literature shows that writers who have investigated the effect of adrenalin agree that it prevents the occurrence of the hæmoclastic crisis. Glaser⁽⁸⁷⁾ considers that the cause of the hæmoclastic crisis is a change in the equilibrium between vagal and sympathetic tonus, and finds that after an active dose of adrenalin and atropine the leucopenia following ingestion of milk can be changed into a leucocytosis, while the effect of pilocarpine in the normal subjects is to convert the leucocytosis into a leucopenia. Administration of adrenalin or luminal will abolish the occurrence of the hæmoclastic crisis in mania, anxiety and epileptic cases⁽⁸⁸⁾. Stocker⁽⁸⁹⁾ also notes that injection of adrenalin prevents the occurrence of the hæmoclastic crisis, and considers it due to the increased resistance brought about by the raising of the sympathetic tonus by the adrenalin. Garrelon and Santenoise⁽⁹⁰⁾ find that pilocarpine augments and hastens the effect of a peptone injection, whereas atropine prevents the occurrence of the leucopenia following peptone. Arloing and Langeron⁽⁹¹⁾ record similar findings, and conclude that the rôle of the vagus system is chiefly in the production of a marked leucopenia.

Effect of adrenalin on the hæmoclastic crisis.—Four normal subjects and 4 subjects who showed a well-marked hæmoclastic crisis following the ingestion of milk were selected, and the leucocyte variations after subcutaneous injection of adrenalin at intervals of 10, 30 and 50 minutes after injection were noted. With the exception of one of the pathological cases a similar type of curve was found, falling after 10 minutes. Three days later a similar injection of adrenalin was administered, and 10 minutes later 200 grm. of milk were given to the same 8 subjects and the leucocyte levels noted as before. Comparing the two curves it was found that in the normal

subject there was no evidence of a reversed reaction of the milk due to the adrenalin. On the other hand, in the pathological cases the effect of the milk was to cause a definite leucocytosis in 3 of the cases, and in the fourth to replace a very considerable leucopenia by a comparatively slight one. These results, therefore, afford evidence of the reversal of the action of the milk by the injection of adrenalin.

Effect of atropine.—The same 8 subjects were again examined as before, using atropine instead of adrenalin.

In the 4 normal subjects the atropine curve somewhat resembled the adrenalin curve, but the leucocytosis was less marked. In the 4 pathological cases the curve tended to be rather irregular, 3 of the subjects showing a slight but definite rise throughout, while the fourth showed a definite fall throughout. Comparing the two curves, in the 4 normal subjects there was no evidence of a reversed reaction due to the atropine, while in the pathological cases there was evidence of a reversed action of the milk after atropine, and in the fourth case the curve was the resultant of the milk leucopenia and the atropine leucocytosis.

Adrenalin and atropine are, therefore, able to convert the leucopenia following ingestion of milk into a leucocytosis, the action of the former being more marked than that of the latter, while neither appears to have any influence on the leucocytosis which follows the ingestion of milk in the normal subject.

Effect of pilocarpine.—The same subjects were investigated with pilocarpine. In general the curve was S-shaped and there was no difference in the type of curve found in the two groups of cases. Comparing the two curves in 6 cases—3 normal, 3 pathological—the milk was found to have no effect on the curve, *i.e.* the pilocarpine curve and the pilocarpine plus milk curve were identical. In the remaining two subjects the curves were irregular, in one case a leucocytosis replacing a leucopenia, and in the other a leucopenia replacing a leucocytosis.

Ten other subjects were then investigated—5 normal and 5 abnormal—who had been given an injection of pilocarpine, and immediately afterwards 200 grm. of milk, but no very definite results were obtained, though there was a tendency to conversion of the normal leucocytosis into a leucopenia.

Tracing the effect of pilocarpine at intervals of 5 minutes for 20 minutes, and similarly the effect of milk and finally pilocarpine plus milk in 4 normal and 6 abnormal cases, 4 of the abnormal cases showed a rapid and intense leucopenia which was maximum at 10 or 15 minutes after the pilocarpine plus milk, and which was recovering at 20 minutes. This, however, was not constant.

THE EFFECTS OF THYROID GLAND AND INSULIN ON THE HÆMOCLASTIC CRISIS.

The influence of *thyroid* was also investigated. Ten subjects were selected—5 normal and 5 who had repeatedly shown a hæmoclasis after milk. Each was put on thyroid, gr. xxx daily, for three days, and on the third day was given 200 grm. of milk. In each case there was a definite reversal of the reaction, the normal subject showing the hæmoclastic crisis, the abnormal a leucocytosis, with one exception, where a very marked leucopenia was replaced by a comparatively slight leucopenia.

Five subjects who had been on thyroid for a fortnight and who showed a reversed reaction were examined 5 days after the thyroid had been discontinued. Two showed the original reaction, 1 showed a tendency to return to the original reaction, while 2 still showed a reversed reaction.

Finally 4 cases who were being treated with *insulin* were investigated, and the insulin was found to have no influence on the leucocytic reaction to milk.

The normal and the abnormal subject reacted in a similar way to injection of adrenalin and pilocarpine. Both adrenalin and atropine were able to abolish the occurrence of the hæmoclastic crisis in the abnormal and convert the leucopenia into a leucocytosis but did not appear to have any influence on the reaction in the normal subject. The effect of pilocarpine varied. There was a tendency to convert the normal leucocytosis into a leucopenia, but it was not constant; and there was a tendency to cause a rapid and intense leucopenia after milk in the abnormal, but again this was not constant. The effect of thyroid was to cause a reversed reaction in practically every case, while insulin was found to have no effect.

THE EFFECT OF ACIDITY AND ALKALINITY ON THE LEUCOCYTES.

Ciaccio⁽⁶²⁾, as the result of researches on fasting dogs, finds that 100 c.c. of 4 : 1000 HCl gives a leucocytic reaction analogous to that observed after a protein meal. In men he finds that the leucocytosis is preceded in 8/12 or 66 *per cent.* subjects by a leucopenia⁽⁶³⁾, and that the maximum leucocytosis occurs at 45–60 minutes⁽⁶⁴⁾. Pagniez and Plichet⁽⁶⁵⁾ also find a leucocytosis with 150 c.c. HCl, and that a small dose or lowering of concentration gives no result. The leucocytosis is chiefly due to the polynuclear leucocytes. Fernandez⁽⁶⁶⁾ has observed a constant leucopenia after ingestion of sodium bicarbonate, and considers this due to a neutralization of the HCl.

Five normal subjects were given 150 c.c. 0.4 *per cent.* HCl and the leucocyte counts observed 20 and 40 minutes later. Four gave a definite leucocytosis and the remaining 1 showed only a slight

leucocytosis. Similarly 5 subjects who showed a leucopenia after milk were examined, and of these 2 responded by a definite leucopenia, 2 showed practically no change and 1 a slight leucocytosis.

These results are not in any way conclusive, though there is a tendency towards the same type of response occurring after the hydrochloric acid as after milk. If, however, the presence in the stomach of the HCl were the cause of the leucocytosis or leucopenia one would expect to find more constant results.

The effect of a large dose of alkali and a large dose of acid on the leucocytes was investigated, both in the normal and the abnormal subject.

Eight normal fasting subjects and 7 pathological fasting subjects were given 4 grm. sodium bicarbonate in 200 c.c. water, and the leucocytes counted 20 and 30 minutes later. Of the 8 normals 6 responded by a definite, well-marked leucocytosis, 2 by a very slight leucocytosis. Of the 7 pathological cases 3 responded by a slight leucocytosis, 3 by a slight leucopenia, and 1 by a very marked leucopenia.

There is therefore no clearly defined difference in the way in which the two groups respond to the same stimulus, though the normals show a tendency to react with a marked leucocytosis.

Six normal fasting subjects and 6 pathological fasting subjects were given 4 grm. ammonium chloride in 200 c.c. water. All 6 normals showed a comparatively slight leucopenia, 4 pathological cases showed a slight leucopenia, 1 a slight leucocytosis and 1 a marked leucocytosis. Again there is no marked difference in the response of the two groups to the same stimulus.

Comparing the response of the *individual* to (a) sodium bicarbonate and (b) ammonium chloride, 5 of the 6 normal subjects show a different type of response to the two drugs, *e.g.*, a marked leucocytosis follows sodium bicarbonate, a slight leucopenia ammonium chloride. The sixth case responded by a slight leucopenia to both. Similarly in 4 of the pathological cases, 3 show a different type of response to the two drugs and the fourth is not so well defined.

The results of these investigations on acidity and alkalinity do not, therefore, give any conclusive evidence, especially with regard to the type of response given to sodium bicarbonate and ammonium chloride by the two groups of cases.

INFLUENCE OF POSTURE ON THE LEUCOCYTES.

Hesselbalch and Heyerdahl⁽⁶⁷⁾ find that there are two definite leucocytic levels—a lower level when the subject is upright, a higher when horizontal. The change, however, is not constant. Ellerman and Erlandsen⁽⁶⁸⁾ and Joergensen⁽⁶⁹⁾ find this change constant, and the latter considers the explanation to be inequality of distribution in the small peripheral vessels, produced by modifications in the functioning of the heart, probably by rapidity of the circulation.

The effect of posture on the leucocytes was investigated. The subject was fasting, and the test was carried out before the subject had arisen. A leucocyte count was taken while the subject was in bed, and then a second was taken about 45 seconds after assuming the vertical position. Blood-films were also taken. Twenty normal subjects were examined, and in 18 there was a fall of leucocytes after rising, and in 2 an increase of leucocytes, *e.g.*, (1) 8,950, 8,150; (2) 9,900, 7,700; (3) 9,150, 8,400.

Thirty subjects who showed the hæmoclastic crisis after milk were examined, and 26 were found to give an increase of leucocytes after rising and 4 a fall of leucocytes.

The differential change was comparatively slight and inconstant, and in some cases no change was found.

Estimation of the variation in the erythrocytes showed that the erythrocytes vary in the same direction and almost exactly in the same percentage as the leucocytes.

In 12 subjects—6 normal and 6 pathological—the test was repeated (*a*) after injection of adrenalin, and (*b*) after injection of pilocarpine. The initial count was taken 10 minutes after the injection. The effect of adrenalin on this reaction is practically *nil*, and of pilocarpine is a tendency to a reversed reaction.

9,150	8,400.	After adrenalin	10,700	9,100
9,400	11,400.	„ pilocarpine	9,150	7,250
9,150	8,400.	„ „	8,250	9,300

The reversal, however, is not constant.

The effect of postural change in the two groups of subjects differs, but is not constant for either one group or the other. On repeated examination the same individual responded by the same leucocytic change.

The fact that the erythrocytes vary to practically the same extent as the leucocytes and that there is practically no differential change, points to a vaso-constriction or a vaso-dilatation as the cause of the leucocytic variation.

DISCUSSION OF LITERATURE.

Before proceeding to a discussion of the results of these investigations it will be necessary briefly to consider some of the literature on the subject.

Widal and his collaborators find the hæmoclastic crisis occurring in practically all cases of liver disease, and in many cases of gastric and intestinal disease where the liver is intact they do not find the crisis occurring⁽⁷⁰⁾. Where there is hypochlorhydria, hyperchlorhydria, achlorhydria or apepsia the hæmoclastic crisis does not occur⁽⁷¹⁾, but after salvarsan it becomes positive before clinical signs of liver disturbance have appeared and remains so for some time after the clinical signs have disappeared⁽⁷²⁾. Holzer and Schilling⁽⁷³⁾ have demonstrated the presence of the hæmoclastic crisis in all cases of liver disease and also in heart cases which showed liver symptoms. Bauer⁽⁷⁴⁾ finds that the occurrence of the hæmoclastic crisis is a valuable guide for the affirmation of an eventual liver inefficiency.

Eisenstadt ⁽⁷⁵⁾ ⁽⁷⁶⁾, Erdmann ⁽⁷⁷⁾ and Englemann ⁽⁷⁸⁾ do not find that the hæmoclastic crisis is a test specific only for liver disturbance. Eisenstadt considers that the leucopenia is not the expression of a blood disturbance, but only altered blood distribution. Girault ⁽⁷⁹⁾, as the result of observations on the occurrence of the hæmoclastic crisis in gastric carcinoma and gastric ulcer and cholelithiasis, and its disappearance after operative treatment, considers there is function trouble of the liver-cell rather than histological alteration.

Feinblatt's interpretation of the hæmoclastic crisis is that it indicates a function defect, perhaps transitory, which gives rise to a non-specific anaphylactic reaction. He finds that it occurs in subjects with no clinical evidence of hepatic disease, and relates, not to the liver function in general, but to the proteopexic function ⁽⁸⁰⁾.

Glaser ⁽⁸¹⁾ and Muller ⁽⁸²⁾ believe that the liver has no direct influence on the hæmoclastic crisis, but that the cause is a change in the equilibrium between vagal and sympathetic tonus. In definite cases of hepatic disease the absence of the hæmoclastic crisis is attributed by Landa and Schmid ⁽⁸³⁾ to a state of peptone immunity.

Many observers—Widal ⁽⁸⁴⁾, Galup ⁽⁸⁵⁾, etc.—find the hæmoclastic crisis present in asthmatic subjects, immediately preceding the asthmatic attack. Leeuwen, Bien and Varekamp ⁽⁸⁶⁾ find a leucopenia occurs in nearly all asthmatic cases following a test-meal of butter, eggs or meat, as well as milk. Wolf ⁽⁸⁷⁾, who considers that amino-acids give rise to the hæmoclastic crisis, admits in asthma, urticaria, etc., a partial lesion of the synthetic power of the liver. Mantagnani ⁽⁸⁸⁾ finds a very marked leucopenia, with inversion of the formula, in paroxysmal hæmoglobinuria, while Widal ⁽⁸⁹⁾ notes a typical hæmoclastic crisis in all of 6 cases of urticaria. Roch and Gautire ⁽⁹⁰⁾, injecting subcutaneously autogenous pleuritic or ascitic fluid, find a condition identical with the hæmoclastic crisis.

Le Calvé ⁽⁹¹⁾ notes the occurrence of œdema in states where the hæmoclastic crisis is found—asthma, urticaria and anaphylactic conditions. Dumitresco and Manti ⁽⁹²⁾ find a marked hæmoclastic crisis in leukæmia, and Didier and Philippe ⁽⁹³⁾ and Crainiciani and Popper ⁽⁹⁴⁾ note the presence of the hæmoclastic crisis following milk in 35 *per cent.* of pregnant women.

Pagniez ⁽⁹⁵⁾ notes the hæmoclastic crisis occurring constantly in an epileptic following ingestion of chocolate.

Tinel and Santenaise ⁽⁹⁶⁾ find that after treatment with gardenal epileptics give a leucocytosis following milk, but if the treatment be discontinued they will give a leucopenia. Pagniez ⁽⁹⁷⁾ does not find this constant, as epileptics who give a leucopenia still continue to do so after gardenal has suppressed the epileptic fits.

Claude, Santenaise and Schiff ⁽⁹⁸⁾ note a certain parallelism between variations of intensity of the oculo-cardiac reflex and of the hæmoclastic crisis, and have modified both by atropine, adrenalin and gardenal.

Wilson ⁽⁹⁹⁾ notes the occurrence of the hæmoclastic crisis in 18 of 19 epileptics; but Tudoran ⁽¹⁰⁰⁾ finds the hæmoclastic crisis occurring in only 50 *per cent.* of his epileptic cases.

Glaser ⁽¹⁰¹⁾ finds that children at the beginning of puberty have an alimentary leucopenia which can easily be converted into an alimentary leucocytosis by adrenalin and atropine. This leucopenia is, therefore, a hormone symptom.

Kochmann ⁽¹⁰²⁾ observes that in the suckling the proteopexic function of the liver is probably only partially developed, the state of immunity following the crisis being a comparatively short one. Schiff and Stransky ⁽¹⁰³⁾ find this alimentary leucopenia in infants and children, not only after milk, but after lactose and cane-sugar.

Widal, Abrami, Brissand and Joltrain ⁽¹⁰⁴⁾ find that a marked vasculo-sanguinary crisis can be produced by substances which are neither toxic nor colloid, *e.g.* intravenous injection of NaCl. Cori and Mautner ⁽¹⁰⁵⁾ also note that intravenous injection of water can produce a crisis.

Brodin and Richet ⁽¹⁰⁶⁾ note the identity of blood crisis in anaphylaxis and peptone shock, but inversion of the formula occurs in anaphylaxis and not in the latter.

The balance of opinion, therefore, is against regarding the hæmoclastic crisis as a specific liver function test. All writers, however,

are agreed that it does occur in asthma and urticaria and other anaphylactic conditions, that it generally occurs in epileptics, and that it can occur as a hormone symptom in young children.

The next point to be considered is the various theories which have been put forward to explain the hæmoclastic crisis. These will now be considered as briefly as possible.

Widal, Abrami and Iancovesco⁽¹⁰⁷⁾ base their test for liver inefficiency on the two physiological facts (1) that normally during the digestion of albumens some incompletely disintegrated proteins traverse the intestinal mucous membrane and penetrate into the portal vein, and (2) that the liver exerts on certain of these substances an arrestive action, opposing their penetration into the general circulation. Otherwise the hæmoclastic crisis occurs. The injection into the general circulation of a dog of a certain amount of commercial peptone immediately determines a vasculo-sanguinary crisis, while a very much larger amount of amino-acids is necessary to provoke the crisis.

Porto-caval derivation in fasting dogs does not give rise to a vasculo-sanguinary crisis, but during the digestive period is followed by the crisis⁽¹⁰⁸⁾. A sufficient quantity of portal blood introduced into the femoral vein in dogs was followed by a manifest crisis; while no crisis appeared in control animals into whom was introduced a similar amount of portal blood from a fasting animal. The portal blood brings during the period of digestion proteids incompletely disintegrated, of which the penetration into the general circulation in small doses suffices to give rise to the hæmoclastic crisis. Normally the liver deals with them, fixing or transforming them (the proteopexic function), but when the liver is not intact it becomes incapable of opposing the passage into the general circulation of these incompletely broken-up proteins.

Junkersdorf⁽¹⁰⁹⁾, from the standpoint of physiological experience and clinical observation, regards the leucopenia of hæmoclasia as a distribution leucopenia. The fall of arterial pressure is caused through paralysis of the vaso-motor nerve ending in the smooth muscle, owing to the unphysiological albumen waste products entering the circulation as the result of liver inefficiency. The seat of the disturbance which is responsible for the change in the coagulability of the blood is to be found in the liver (paralysis of thrombin production, abnormal anti-thrombin formation). Taking everything into consideration, the hæmoclastic test, *quid* liver test, is only of value if all three factors are evident.

Anaphylactic shock is not due to a specific poison, but can appear as the result of a physical process. A toxic process is essentially specific. The condition which is produced by antigen, crystalloid, cold, is not intoxication, or destruction of the cellular chemical equilibrium, but colloidoclasia, or rupture of the physical equilibrium of the colloids of the organism⁽¹¹⁰⁾. Amongst the factors which have been incriminated as pathogenic is flocculation, which acts by exciting the endothelium of the cerebral vessels, thus causing dilatation of the capillaries and reflexly, dilatation of the entire visceral tree⁽¹¹¹⁾. In support of this theory Lumière⁽¹¹²⁾ states that preliminary ligature of the carotid artery hinders the production of shock.

Drouet⁽¹¹³⁾ considers humoral disturbances to be the essential factor in hæmoclasia, the vegetative nervous system being merely secondary. The vaso-dilatation and hypotension are similar to those which Claude Bernard obtained on section of the cervical sympathetic of the rabbit⁽¹¹⁴⁾. His theory is a combination of that of Lumière, *choc* vasculo-cerebral, and that of Widal, Abrami and Vallery, Radot, *choc* tissulaire, colloidoclasia. The shock is produced primarily by irritation of the vascular endothelium, but this involves all vessels. Reactions of a physico-chemical order which are produced by contact with the vascular endothelium irritate the nerve terminations of the sympathetic, which are closely in contact with the endothelium.⁽¹¹⁵⁾

Lumière⁽¹¹⁶⁾ does not consider that destruction of leucocytes can be the cause of the leucopenia in the hæmoclastic crisis, because of the time reaction and the absence of destroyed products. He considers dilution and concentration of the blood the chief *rôle* in the genesis of leucopenia and leucocytosis. Grossmann

(¹¹⁷, ¹¹⁸) finds that injection of quinine produces the same variation of the leucocytes as does ingestion of milk, without, however, any differential change. This latter supports the view that this is a vascular effect of quinine, local vascular constriction of the abdominal vessels, with temporary retention of the leucocytes in the visceral capillaries and consecutive peripheral leucopenia. Cori and Mautner(¹¹⁹) regard the origination of the hæmoclastic crisis as due to spasm of the liver vein interfering with the regular water storage.

Gautier (¹²⁰) considers that hæmoclasia is only one element in a more generalized disturbance, colloidoclasia.

Adelsberger and Rosenberg (¹²¹) state that the sedimentation reaction demonstrates immediately the entrance of colloidoclasia, while Wiechmann and Schröder (¹²²) in a series of observations were unable to find any definite relation between the leucopenia following ingestion of milk and the rate of sedimentation of erythrocytes.

In epileptic crises there is a vaso-constriction and coldness of the extremities, and investigation has shown that there is a marked hæmoclastic crisis. This vaso-constriction later gives place to a vaso-dilatation(¹²³, ¹²⁴). Emotion, *e.g.*, anger or grief, causes vaso-constriction and leucopenia, as does also electrical stimulation of the vaso-motor fibres of a mixed nerve(¹²⁵). This leucopenia is, therefore, of a mechanical order, vaso-constriction of the capillaries, and as the leucopenia of the hæmoclastic crisis shows the same characteristics and exists only in the periphery it is the result of peripheral vaso-constriction.

DISCUSSION OF RESULTS.

Consideration of the results of these investigations demonstrates that the hæmoclastic crisis does not occur in the normal healthy subject, but that it does occur in a large percentage of psychotics. Including those cases who give an indeterminate reaction amongst the abnormal reactions, we find that 85 *per cent.* of all the chronic psychotic cases respond to ingestion of milk by an abnormal reaction.

Analysis of the results obtained from the early psychotic and neurotic cases shows that the greater number of the cases who give the hæmoclastic crisis are psychotic, chiefly of the dementia præcox type, and that the greater number of those who are classified as neuroses, other than anxiety neurosis, are found to give a normal response to ingestion of milk. Psycho-motor activity does not appear to influence the reaction.

The majority of the cases who had hyperthyroid symptoms or who were arterio-sclerotic were found to respond to ingestion of milk by leucopenia. Both hyperthyroidism and arterio-sclerosis may therefore be factors in the production of the hæmoclastic crisis, but the number of cases investigated was too small to justify any very definite statement.

That the change is not entirely a peripheral change is shown by the fact that similar leucocytic variations occur in the venous blood, though this does not rule out the possibility of the change being primarily peripheral. The differential change which occurs in the leucocytes and the disproportionate variation in the leucocytes and the erythrocytes show that the mechanism is not merely a

vaso-constriction or vaso-dilatation. Incidentally it has been shown that both the normal subject and the psychotic patient respond to vaso-constriction and vaso-dilatation in a similar manner.

The response to changes of posture is purely a vaso-constriction or a vaso-dilatation. That there is obviously some abnormal vascular reaction is shown by the vaso-dilatation which occurs in the psychotic, and though this occurs in the majority of the cases who show the hæmoclastic crisis it does not occur in all of them.

There is also evidence that there is an abnormality of the heat and cold reflex in the two types of subject.

The results of administration of hydrochloric acid point to it being a factor in the leucocytic response to ingestion of milk, but the exact nature and extent of its action needs further investigation.

The influence of the sympathetic and parasympathetic nervous system must be regarded as a factor in the genesis of the hæmoclastic crisis. The response to sympathetico-mimetic and parasympathetico-mimetic drugs, however, fails to show any evidence of a different threshold excitability in the various types of subject investigated.

Both adrenalin and atropine cause a reversal of the reaction in the abnormal, *i.e.*, convert a leucopenia into a leucocytosis, but in the normal subject neither drug appears to influence the reaction to ingestion of milk. Pilocarpine does not produce any constant result, though it does sometimes convert the normal leucocytosis into a leucopenia, and on the other hand intensify and hasten the onset of the abnormal leucopenia. It cannot, however, be stated that the hæmoclastic crisis occurs in vagotonic subjects and not in hypo-vagotonic subjects.

The abnormality lies, therefore, in the response to milk, which becomes the same as that of the normal either by stimulation of the sympathetic by adrenalin or paralysis of the parasympathetic by atropine.

Two factors emerge from this work as being definitely concerned in the hæmoclastic crisis, though others may affect it directly and indirectly. In the first place it is clear that the response of the peripheral circulation to various stimuli in patients showing the hæmoclastic crisis does differ from that of the normal, as is clearly shown by dilatation instead of constriction to posture and to reflex cold. That a purely mechanical process, such as local vascular spasm, is not the explanation of the leucopenia of the hæmoclastic crisis, is shown by the fact that there is a relative and absolute increase of the large mononuclear leucocytes, and that the differential changes of the leucocytes which occur in local vaso-constriction

or dilatation are almost negligible, while the differential changes which occur in the hæmoclastic crisis are comparatively large.

The second factor is obviously the vegetative nervous system.

A satisfactory explanation has yet to be found. This may lie in the fact that the endocrine system and vegetative nervous system may show reversible reactions altered by various factors, which may be of a physico-chemical nature, *e.g.*, the hydrogen-ion concentration of the environment.

SUMMARY.

In the absence of any stimulus the leucocytic level remains unaltered during one hour.

Heat, cold, pressure, change of position cause a variation in the leucocytes of the peripheral blood.

Ingestion of 200 c.c. of cold water does not cause any variation in the leucocytes.

Following ingestion of 200 grm. of cold milk by 100 fasting normal subjects a leucocytosis was observed in all of them.

The hæmoclastic crisis occurred in 94 *per cent.* of dementia præcox patients, in 85 *per cent.* melancholics, in 75 *per cent.* of chronic mania cases and in over 60 *per cent.* of early psychotic and neurotic patients.

Glucose causes hæmoclasia in diabetics but not in the psychotic patients, who exhibit it after milk.

The leucopenia of the hæmoclastic crisis is not confined to the periphery, and this leucopenia is accompanied by a comparatively slight decrease of erythrocytes.

The effect of moderate heat or cold is to cause a leucocytosis (vaso-dilatation) or leucopenia (vaso-constriction). The normal subject responds to reflex cold by a vaso-constriction, to reflex heat by no alteration, while the abnormal responds to both reflex cold and reflex heat by a vaso-dilatation.

Normal subjects and psychotic patients all responded in the same way to injection of the sympathetico-mimetic and para-sympathetico-mimetic drugs.

The effect of adrenalin and atropine on the hæmoclastic crisis was to prevent its occurrence. The effect of pilocarpine was too varied to allow any general statement to be made.

The effect of thyroid was to cause a reversal of the response to ingestion of milk in both normal and abnormal subjects.

The administration of large amounts of acid and alkali failed to show any different reaction in the two types of case, the normal and the psychotic.

Ninety *per cent.* of the normal subjects responded to a change of posture by a leucopenia, while 87 *per cent.* of those who exhibited hæmoclasia responded to a similar stimulus by a leucocytosis. These changes are accompanied by similar erythrocytic changes, and are probably the result of vaso-constriction or vaso-dilatation.

In conclusion I would express my indebtedness to Dr. Golla for his interest and guidance in this research, and to Dr. Mapother, Col. Lord, C.B.E., and Dr. Daniel for facilities for the examination of cases in their hospitals, and to their medical officers for their helpful collaboration.

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The Interpretation of some Sexual Offences.⁽¹⁾ By W. NORWOOD
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THE family physician is occasionally called into consultation when one of his patients, a hitherto respected citizen, becomes arrested for a sexual offence. In such circumstances the relatives, friends or legal advisers of the accused are often prompted to raise a defence of insanity, mental disorder or defect in answer to the charge. On examination the physician may find such evidence. If not he may regard the patient as being psycho-pathological, but unless he has devoted time to the consideration of the subject, and is also well acquainted with insanity, amentia and border-line states in his daily work, he may not feel sufficient confidence in his general knowledge and medical experience to face with equanimity the prospect of a severe cross-examination in the witness-box on an admittedly difficult and controversial subject. I know the family physician may, in such cases, feel embarrassed, and I propose to attempt to bring before you certain matters for consideration which it seems well to bear in mind when inquiring into the mental condition of persons accused of sexual crime, and which I suggest throw some light upon actions that otherwise appear unusually obscure.

I shall only have time to touch upon the fringe of the subject, but I shall endeavour to show that if certain modern views concerning

⁽¹⁾ A paper read at a meeting of the Norfolk Branch of the British Medical Association on April 15, 1925.

the evolution of sexual development, the composite character of the sex instinct and the psychological conceptions of regression, projection and identification are accepted, some help in understanding abnormal sexual conduct may result.

As a preliminary, it may be well to emphasize the desirability of distinguishing between the sexual object and the sexual aim (1) when considering abnormal sexual conduct, criminal or otherwise. The normal sexual object is, of course, a member of the opposite sex. In the abnormal it may be a person of the same sex, it may be some part of the body unsuited for the purpose, such as the foot or hair, or an inanimate object, such as a shoe, handkerchief or underclothing, as in cases of fetichism. It may be an animal. It may even be a corpse, and the condition is then spoken of as necrophilia.

The sexual aim of the normal adult is, of course, physical union, but in abnormal cases this may be replaced by some act usually introductory and subsidiary to the normal aim. For instance, the amours of certain philanderers suggest that for them, at least temporarily, the pursuit of the woman is in itself the sexual aim, just as to be pursued is that of some female flirts who, be it noted, may persistently refuse offers of marriage. To such, pursuing in the one case and being pursued in the other appear to take the place of desire for physical union. Conflict with the law may result when such preliminaries or subsidiaries to the normal aim as exposure, looking, touching, acts of aggression, cruelty or the infliction of pain form of themselves the sexual aim.

I. CRIME IN RELATION TO THE SEXUAL OBJECT.

The evolution of sexual development.—First as to crime in connection with the sexual object. Consider the evolution of sexual development as we see it in family life. The newborn infant is immediately concerned in himself alone, but soon the warmth, nourishment and comfort derived from the mother, or mother substitute, be she nurse or foster-mother, attract the infant, and some affection for the mother or mother substitute becomes manifest. Later the male parent is included in the child's affection, to be followed in turn by affection for members of its own sex, seen notably in school friendships. Still later, the youthful adolescent becomes attracted by members of the opposite sex, and finally affection may centre in a single member of that sex.

It is, however, held that the normal psycho-sexual development briefly outlined above may fail, and become arrested or fixed at any stage and so persist into adult life.

There can be no doubt, from a perusal of personal narratives, that the sexual instinct may be exhibited at a much earlier age than was formerly supposed. Freud (2) and others appreciate sexuality in the infant, whom they regard as being auto-erotic. They further trace a sexual content in the child's affection for its parent. However this may be, there seems no doubt that children of quite tender years may experience sexual impulses, for medical men from time to time meet with undoubtedly authentic cases of individuals who are able to recall their initiation into sex experience by the nursemaid or others at the age of five or earlier, and that from such incidents pleasure of a sexual character was derived.

Passing now from the infant to the older child. It is common knowledge that under unfavourable conditions members of the same sex at school may indulge in sex intimacies with one another. Under favourable conditions of development, however, these homo-sexual tendencies disappear, and their place is taken by hetero-sexual impulses, *i.e.*, sexual desire for members of the opposite sex.

It will be gathered from the above that the individual who derives sex gratification from him- or herself is called auto-sexual, if from members of their own sex homo-sexual, and if from members of the opposite sex hetero-sexual. But by many—and this is important—the individual is conceived as being potentially auto-, homo- and hetero-sexual coincidently, but in varying degrees.

It is also considered by many that if a man's sexual development becomes arrested very early he may grow up incapable of genuine affection for anyone but himself, and to this condition the name of narcissism has been given. One does appear to meet such persons from time to time who throughout life remain sufficient to themselves and unattracted to others save in a very superficial manner. Should sexual development become arrested at the next stage the individual is said to show a tendency throughout life to be dependent on the mother's protection, or on people with whom he comes in contact through life and are regarded as mother substitutes. When parent fixation occurs the individual may become sexually attracted to the parent of the opposite sex, and the pathological complex arising in the mind of the son in relation to his mother is called the *œdipus complex*, whilst that of the daughter for her father is called the *electra complex*. It is probably not altogether uncommon to find persons so attracted to the parent of the opposite sex as to be unable either to fall in love with anyone else at all, or only with an individual having some strong resemblance to that parent. Should fixation occur at the next latest stage sexual attraction results for persons of the same sex only, and we meet with women who remain unattracted to men, and men unattracted

to women, each being attracted to members of their own sex. And some of the intense friendships between members of the same sex are held by certain observers to be actually homo-sexual in character, and medical men meet with cases where there can be no doubt this is so in fact and in deed. When the homo-sexual fixation is less decided the person may marry, but will probably select a partner whose dominant characteristics are those of the same sex as their own.

I have no record of any case of a sexual offence attributable to narcissism. But the relation of this condition to crime appears to be of speculative interest and worthy of a systematic investigation. One sometimes wonders whether those criminals who apparently lead asexual lives, and exhibit callous selfishness in general and total disregard for the feelings of their near relations in particular, may not possess these characteristics as a result of fixation at the earliest stage of sexual development.

Sexual fixation on the parent is shown in the two following cases :

A youth, æt. 16, was under my observation a few years ago. He was charged with indecently assaulting his mother. He had repeatedly offended in this manner, and had also gone to her bed in the morning, when his father had left for work, and there endeavoured to have sexual relations with her. Believing the lad to be abnormal on account of the persistency of his indecent conduct towards her and being afraid of him also, the mother caused him to be arrested, and asked the magistrate to have his mental condition inquired into. On examination he was, except for the genital organs, poorly developed. He appeared to have no inclination towards girls. His conduct and admissions showed definite persistent strong sexual attraction for the mother and no one else. There was no reason to suppose that any suggestive inciting actions on the mother's part had ever been made purposely at any time, there was no evidence of insanity or mental deficiency, and the case seemed most easily understood as an example of the œdipus complex.

In the following case the offence was only indirectly associated with this complex.

The accused, a young man, æt. 22, was charged with assaulting the police, and was then insane suffering from delusions which centred round a sexual basis, and which appeared to have evolved as an attempted solution of the complex. His father was a professional man many years older than his mother. Their marriage quite early turned out unhappily, and the parents separated, the mother taking the young and only child with her. They lived a somewhat solitary life together, and an unusually deep affection between mother and son was found to exist. He had no friends or companions save her, he made no school friends, giving as a reason that he always returned home as soon as he could from school to be with his mother. His only recreations were cycling and writing poetry. He never had any girl friend. His mother told me she advised him on one occasion to have sexual relations with women, thinking it might be beneficial, but he rejected the suggestion. She informed me that they kissed each other a great deal, that he had bitten her cheek and arm sometimes when kissing her, and she had recognized this as a sexual demonstration ; he had also put his hand some distance up her leg. During the remand he wrote passionate letters to her, from which the following are abstracts : " It would be lovely to see my little (pet name) once more. . . . I seem to have been away from you for all eternity. . . . Darlingest, darlingest, you are kissed again and again in gratitude. . . . Are you lonely ? Do you miss me ? I don't want you to be the former, but I certainly want you to be the latter.

. . . You are a darling. I love you so there. . . . What was it like the night alone." With this history the œdipus complex seemed to be reasonably established.

It should not be thought that the œdipus and electra complexes are common causes of incest. This is a frequent offence, which often results from alcohol and perhaps is mainly attributable to propinquity. The father frequently does not seduce his daughter until the mother's death. I cannot recall a case so charged which I considered was clearly due to the sexual attraction of the child for the parent and the subsequent consent of the parent. There may, however, be a fallacy in this, for I cannot recollect a charge of incest being brought against the mother, and a charge of incest is often not made against the father until the girl's pregnancy becomes obvious, and she may, without difficulty, as a rule excuse her conduct by alleging she was his unwilling victim.

Examples of fixation at the next stage—that is when sexual attraction is felt entirely or in great part for members of the same sex—are very common in prison practice amongst men, and one is led to suppose, from a perusal of the literature, that this may be even more common in certain other countries than our own. There are, however, such obvious difficulties in estimating the number of homo-sexuals in any community that no reliable figures can be offered, but its frequency cannot be doubted and the numbers are certainly very considerable. It must not, however, be thought that every sex offence of males with males results from homo-sexual fixation in both men. A certain number of youths, for instance, are annually arrested for immoral soliciting, but there is reason to suppose that in many cases the dominant factor for them is an economic one, and they accept the rôle as an easy means of livelihood with excellent opportunities for blackmail. The homo-sexual, by some also called an invert, the phenomenon of homo-sexuality being then called inversion, may be entirely homo-sexual, homo- and hetero-sexual, or homo-sexual when hetero-sexual opportunities are lacking. That the condition exists should not, perhaps, cause surprise, for we are all anatomically bisexual, we each possess the rudimentary sex organs of the opposite sex, as witness the uterus masculinus and clitoris, and this suggests we may be also psychically bisexual. The condition is found in persons who show no other marked abnormality; they may be of superior intelligence, prominent and successful in their calling. The tendency appears at times traceable to an emotional experience in childhood or about puberty, or may be influenced by more easily ascertained causes, such as fear of venereal disease, sexual weakness, exclusive companionship with the same sex, satiation with sexual experiences with

women, or as a result of an urgent desire which utilizes the nearest substitute for the normal sexual object.

The homo-sexuals frequently retain the mental characteristics of their sex, and may seek in their sexual object features of the opposite sex. This is seen in the selection of immature and pretty youths by certain male homo-sexuals, whose impulses—as pointed out by Freud (3)—thus try to unite both sexes in one object. Prison observations lead one to conclude that the homo-sexual may experience less powerful sexual impulses than the normal. This view conforms with that of Havelock Ellis (4), and is endorsed by Freud (5) and others. On the other hand, we occasionally meet in prison with cases of persistent and powerful homo-sexual impulses in individuals who are satisfied with their condition, which they consider to be normal. There are, however, some with more insight, who regard themselves as abnormal and appear anxious to be cured. Prisoners of this class do not usually suggest they are unable to control themselves. One informed me he “had unnatural natural desires which he had to control carefully lest he gave way to them in circumstances which would lead to arrest.”

The sexual aim of the homo-sexual is not always the same. The resulting offence, judged from the legal standpoint, may be slight, and punishable by a fine or short term of imprisonment, or grave and punishable by penal servitude for life.

Many of the cases seen in prison appear to be purely homo-sexual. The following abstract from my notes illustrates hetero- and stronger homo-sexual impulses in the same person. A man in his third decade, well educated, intelligent and, at one time, a public servant, married on reaching adolescence. His wife soon after left him, taking with her the one child of their union. He was arrested for indecently assaulting a lad he met casually in the street and invited to his hotel. There was a previous conviction for a similar offence. He was of fair physique, but thin, there were fine tremors of the hands, but gait, speech and reflexes were normal. There was no evidence of insanity or mental deficiency. He was interested in his own case, and a short mental analysis showed that although there was at times a slight sexual attraction for women, boys, and particularly boys with bare knees, were his strongest sexual stimulant. His friendships at school appear to have been made on a sexual basis, and mutual indulgences were then practised. His first remembered sexual desire on leaving school was said to have been aroused by seeing some boys bathing naked in a park. If it is conceded that a certain degree of fixation occurred at school we are afforded some explanation of his offences.

It should be remembered that homo-sexuality and sexual fixation

may give a clue to crimes which at first sight are not obviously sexual.

A restaurant cook, approaching middle age, was charged with attempting to murder the man who shared his private lodgings. There was no history of insanity in the family, but a sister was said to be epileptic. The accused had never been in an asylum, was not epileptic and was temperate. He stated that some time prior to arrest he had been depressed, apprehensive, nervous and irritable, and was under treatment for neurasthenia at the time of the crime. There was some corroboration of this. He was, however, rational in conduct and conversation, and I was unable to find any evidence of insanity or mental deficiency. It was some time before analysis ascertained the true facts of the case, but I eventually learnt that immoral relations had for some time existed between the two men, the prisoner being the passive agent, and when the accused discovered his victim was going to marry the landlady his jealousy was aroused and he attempted to kill his male lover, and the landlady, who came to the rescue. I heard later that after the crime the prisoner said to a relative that he had committed the act as the victim, "having had my body, turns me over for this woman." The eternal triangle of the dramatist was thus varied, a man and a woman being in love with the same man.

And in passing I may mention the advisability of suspecting homo-sexuality when a person murders someone of the same sex and no motive can be found for the act, or when an apparently motiveless double suicide occurs in persons of the same sex. Homo-sexual practices are not, of course, confined to men, but do not form the subject of a criminal charge as far as my experience goes when women are concerned. Those who have read Mr. Seymour Hicks's book on *Difficulties* will remember he advises newly married men to be on their guard lest perverted women attempt to seduce their wives with these practices—a warning which would seem to indicate they are not so uncommon.

Crimes in the final, hetero-sexual stage of development, when the sexual object is a member of the opposite sex, vary from assaults to bigamy and rape. They are usually easily understood, and I need not occupy your time in considering them.

Fetichism.—In cases of fetichism the sexual object is some unsuitable part of the body, such as the foot or hair, or an inanimate object, such as a shoe or underclothing. The condition is probably not uncommon, and does give rise occasionally to crime.

A glass-blower, æt. 30, was charged as a suspected person. He was seen to go up to a little girl in the street and cut off some of her hair, and was arrested with the scissors in his hand and hair in his pocket. At his address were found five hair-plaits of different colours, loose hair of two different colours, and 72 hair-ribbons. He had left school in the sixth standard, had never been in an asylum nor had any fits, and was temperate. He showed no indications of insanity. He was undersized, and his hetero-sexual instincts appeared weak. He was married, had two children, but was living apart from his wife. He had served in the East during the war, and had there committed similar offences. I was able to trace back the fetichism to its associations which he detailed to me, but which I need not inflict on you. It was also influenced by the fact that he was living apart from his wife, and the fear of venereal disease prevented indulgence in promiscuous intercourse.

In one case in which women's underclothing was the sexual object the fetichist committed burglaries to obtain the articles, and in another a man stole, on several occasions, bottles of scent from chemists' shops.

Binet, quoted by Freud (6), and Krafft-Ebing (7) concluded that fetichism was determined by some accidental impression in the past life of the individual, and the medical examiner inquiring into these cases should not rest satisfied until he has patiently explored the past for such association and the accompanying emotion. This is often a matter of difficulty, for the circumstances in which the association arose are frequently forgotten. The importance of the mental factor phantasy in all sexual problems must never be disregarded. It must be remembered that the lover endows articles belonging to his mistress with some of her attributes, and so the retained handkerchief, letter or lock of hair may be caressed in secret. Such acts represent a normal fetichism, which becomes pathological when the fetish itself monopolizes sexual desire and becomes the chosen sexual object.

Bestiality.—It has been mentioned that animals may form the sexual object, and crimes of so-called bestiality are by no means infrequent. They are most common in country districts, and may be committed by the insane and defective, but by no means usually. In the agricultural districts there can be little doubt that urgent sexual impulses associated with propinquity and opportunity may result in this crime, and cases have arisen when individuals have become isolated for long periods from ordinary social and sexual intercourse. In certain cases weak hetero-sexual impulses accompanied by the fear of impotency, or fear of venereal disease, appear important factors in determining the sexual object. And I believe that here, too, earlier associations may influence the psychopathic individual and determine the offence.

Necrophilia.—As I have no personal experience of this abnormality, which must be extremely rare in this country, my only remark in passing is this: Modern literature leads one to suppose that when the cadaver forms the sexual object, the pathological condition of the necrophilist is so marked that mental disease or defect may be inferred.

2. CRIME IN RELATION TO THE SEXUAL AIM.

Components of sex instinct.—I will now briefly consider crime in connection with the sexual aim, and to do this it becomes necessary to review the composite character of the sex instinct.

A necessary component of this instinct is the capacity of a member

of the species to perceive the opposite sex of another member and to follow this up by approach. The late Dr. Mercier wrote :

"Biologically the female is of no importance, except as the hostess and nurse of the germ, the male is of no importance except as the host and carrier of the sperm. Consequently the marital *rôle* of the male is actively to search for and pursue the female ; the marital *rôle* of the female is passively to await and expect the advances of the male."(8)

This perception and approach of the male may provide sufficient stimulus to cause the completion of the sexual act, as seen in cases of ejaculatio præcox in certain neurotic men, and McDougall (9) points out that fertilization is effected in certain species of fish by the male ejecting a cloud of sperm-cells in the neighbourhood of the female at the same time as she passes a number of eggs into the water. When, however, actual union is necessary to fertilization the *rôle* of the male is more active and aggressive, that of the female being frequently passive in character, and the disposition to approach, touch and fondle the object of sexual attraction is called by Moll the impulse of contrectation. But the aggressive component of the male sex instinct may be accompanied by violence. Witness the conduct of the cock in a poultry yard, and this may be willingly submitted to by the female. In certain cases there is a definite desire to inflict pain during the sexual act, and this, when excessive, is called sadism, and its counterpart the desire to submit to pain during the act is called masochism ; they are considered by some to be components of the sex instinct. McDougall (10), however, regards them as representations of self-display and self-abasement, operating with abnormal intensity under the special condition of the sexual relation. Other components of the sex instinct to be recognized are the impulse to look at the sexual object, and the showing off and exhibition of sex characters seen not only in man, but in other animals, notably in birds.

Approach.—There is some reason to suppose that the component of the sex instinct, the approach of the male to the female, may occasionally form the sexual aim and lead to crime. I have come across a few cases of males accosting females which seemed to be of this nature. When, as is sometimes the case, the approach is combined with the component of self-display and the advance is accompanied by exposure of the sex organ, the sexual aim is more certain, for the advance may result definitely in emission, although no contact with the woman is effected.

Contrectation.—That component of the sexual instinct which Moll has called contrectation, and which, as already stated, includes the impulse to approach, touch and fondle another person, is frequently found in criminal work to represent the sexual aim and

result in offences. A large number of children are indecently assaulted by men whose sexual aim is thus accomplished by the hand alone. There is, in the cases to which I am referring, no attempt at sexual union but this. They are frequent and important for the moral injury which may be done to the child, and are not easy to understand unless one recognizes that the components of the sex instinct, in themselves preliminary and subsidiary to the normal instinct, may form the sexual aim.

Aggression.—The aggressive component may, I think, form the sexual aim and lead to crime. It is, of course, a prominent feature in the crime of rape, and I regard some of the cases in which men suddenly jump out on women from a dark place or narrow entry and make no attempt to rob them or steal as being of this character. The following was probably such a case:

A youth, æt. 17, was charged with wounding a woman, whom he attacked unawares in her house. She became unconscious from the blow for a short time, and on recovering found the prisoner standing over her. He had made no attempt to escape or steal, nor to rob or indecently assault her. A short time before he had, in a public street, jumped upon the back of a girl, a stranger to him, and tried to strangle her without any provocation. He appeared unable to explain his actions. There was no loss of consciousness. He was under observation some months, and beyond some adolescent instability I could find nothing abnormal. He showed no evidence of insanity, epilepsy or mental deficiency. His paternal grandfather was insane.

I am inclined to place the ink-splashers and other dress-defilers in the same category. There is no doubt that the act of defilement is a sexual act and may result in full sex gratification. Some years ago a widower was under my observation for throwing on to ladies' dresses from a fountain pen a solution of his own fæces, and as he did so experienced an emission. I was unable to trace in that case the association which probably gave rise to the act, but in a man who splashed ladies' dresses with ink with a similar object it was clearly associated with an early sex experience. I would again draw attention to the importance of association in considering sexual crime and, indeed, life generally. Many may remember the physician's wife who suddenly and unexpectedly desired to vomit on entering a room. This was ultimately found to be due to the presence of tangerine oranges, which were associated in her mind with a hurried retreat from the dinner-table at sea on account of *mal-de-mer* when similar oranges were before her. It is no uncommon experience to find in every-day life a man attracted to women possessing some peculiarity, such as a slight strabismus, which is associated with his first love, and Krafft-Ebing records the case of a man who was impotent with women who were not lame as a result of his first emotions towards the other sex, which were coincident with the sight of a lame girl playmate.

Sadism.—I am unable to recall any case in which masochistic impulses of themselves resulted in a criminal offence. Sadistic crimes are, however, not uncommon. I have already referred to the dress-defilers, and some would regard these as cases of sadism, and it must always be a matter of difficulty to distinguish clinically between certain acts of aggression and the slighter degrees of sadism. I am, myself, inclined to distinguish the ink-splashers from the dress-slashers, whom I regard as sadists, and there can be little doubt that the women-stabbers and prickers, *i.e.*, those who as they pass women in the street stab or prick them with a sharp instrument, are definitely sadistic. So also are some men who commit violent rape, but I do not think there is any evidence which would lead one to believe that sadism is a common cause of murder in this country, although there can be no doubt that it may be so on occasion. In one such case the murderer, who apparently made no attempt to have sex relations with his victims, admitted to me that whilst killing them he experienced the same sensations as occurred during sexual intercourse, and there was actual corroboration of his statement and no other motive for the crimes. But I consider this case is quite exceptional, for on going through the notes of the last 105 cases of murder in whom I conducted a psychological investigation I find no other certain case, although one other was probably of this nature. These cases included 83 males and 22 females.

Looking.—The tendency to look at the sexual object—a component of the sexual instinct—results at times in a criminal act, and serious offences may result if this component forms the sexual aim. A middle-aged man led a normal sexual life as far as could be ascertained until his wife's death. He then continued to live with his only child, a female adolescent, whom he induced to go on the streets and bring men home for an immoral purpose, so that he could watch the incidents which then took place between them. This had become, on his wife's death, his sexual aim, and had replaced normal sexual relations.

Exhibitionism.—I have already called attention in a recent paper (11) to those cases in which the sexual aim is exposure of the genital organs. This is a common offence, and is of particular interest in that an unusually large proportion of insane defective and borderline cases are found amongst the offenders. As a component of the sex instinct sex exposure is well seen in birds. Darwin (12), in discussing the display by male birds of their plumage, says: "Ornaments of all kinds, whether permanently or temporarily gained, are sedulously displayed by the males, and apparently serve to excite, attract and fascinate the females." He considers such actions have become instinctive. And in the human species a large number

of cases appear related to faulty development of the sex instinct. In 150 cases specially examined I noted other components of the sex instinct at fault. Thus a sadistic element appeared probable in a few, in one case a masochistic element seemed possible, two were *frotteurs* and two fetichists, one of whom on arrest had a collection of female undergarments in his pockets.

3. REGRESSION AND SEXUAL CRIME.

It is held that when psychic energy fails to satisfy its tendency to action, either from inherent weakness or by some unsurmountable obstacle, such energy may take the course of some channel belonging to an earlier phase of mental development. This is called regression. Tansley (13) gives as an example the exhibition of childish anger when some attempt at action in a particular direction is thwarted. And Biblical history affords us an example when the offer of King Ahab for Naboth's vineyard was refused, and the King "laid him down upon his bed and turned away his face and would eat no bread."

In considering the association of regression with sexual crime it is advisable to specify the condition more accurately, thus: A mental conflict may arise if psychical resistances occur in adult life which prevent the liberation of the particular conscious feeling which should accompany the release of normal hetero-sexual energy, and that as a result regression may provide an outlet for such affect through the more primitive auto- and homo-sexual channels.

I have just referred to the case of the man who shortly after his wife's death sent his daughter on the streets so that he could view her relations with the men she took home. His normal sexual energy found an obstacle to its consummation, either from loyalty to his dead wife, fear of promiscuous intercourse or some other reason, and through regression found an outlet in a more primitive sexual aim—that of looking. So, too, can we regard some of the cases of indecent assaults on young children by old men, whose advanced years render them ineffective for the normal sexual act, but in whom desire remains and finds its outlet in the more primitive sexual aim of touching.

4. PROJECTION, IDENTIFICATION AND SEXUAL CRIME.

I now pass on to consider a form of crime not altogether infrequent, not always sexual in character, usually productive of pernicious results, and the motive for which often appears perplexing. I refer to certain of those cases in which the offender, over a long

period, sends to innocent persons, with whom they may be only slightly acquainted, a series of libellous and often indecent letters.

As examples, I have taken from my note-book the most salient features of two cases, both women, one insane, the other not.

The first was that of a widow, æt. 52, who had never suffered from any serious accident or illness, epilepsy or mental disease, and in whose family history there was no evidence of insanity. Her married life had been unhappy owing to her husband's intemperance. Their large family were grown up at the time of her arrest. She was charged with unlawfully writing and publishing a false, scandalous and defamatory libel concerning a clergyman, Mr. X—, himself a married man with a family. At this time she had been a widow about three years, attended Mr. X—'s church and had taken a small part in church work. Soon after her husband's death she met Mr. X— in the street. He raised his hat and shook hands with her, and as he did so she fancied he pressed her hand slightly and looked up to Heaven. This was construed by her into a "covenant between them," and she believed that at that moment they became married without any further ceremony. She did not regard the "covenant" as a mere union of souls, but as an actual marriage, and when Mr. X—, who had never been alone with her for more than a few minutes, refused to acknowledge her as his wife, she believed he wanted to test her spiritually before doing so. She believed he had shown by signs and looks that he loved her, that on one occasion he appeared at her bedside in a surplice surrounded with foliage, and that when in Church he had quoted from the Apostle, "Ye have not chosen me, but I have chosen you," and looked straight at her, he was declaring his love for her. She sent her bills to Mr. X— to pay, as her husband, and wrote letters to bishops and other dignitaries of the Church, as well as to relations, announcing the marriage. Under observation she was clearly insane, at times exalted, excited, noisy and hostile, at others depressed, tearful and morose. She had visual and auditory hallucinations, and other delusions. She had no insight into her condition, and was unable to appreciate her position.

I had no difficulty in showing at her trial that the case was one of insanity, and not of blackmail, as was suggested. She was dealt with accordingly, but not until she had given rise to scandal in the district and mental distress to the innocent Mr. X—.

The second case was that of a sensual-looking girl of 22, vain, suggestible, idle, and spoilt, who was charged with publishing a series of libellous and defamatory letters. The key to the crime lay in those in which it was alleged that the accused had been seduced by a certain man and was pregnant as the result—this was entirely untrue. Other letters purported to come from various people who knew of the supposed seduction and were corresponding with each other on the matter. The letters were grossly obscene and were capable of causing much mischief, and, of course, resulted in a local scandal, with the prisoner as the ill-used heroine.

The psychological explanation of these cases is called projection. By this is meant a mental process whereby an individual projects on to others part of the contents of their own mind, which they refuse to acknowledge as belonging to themselves, such being intolerable to their own mental comfort. Bernard Hart (14), in describing the condition, says :

"People who possess some fault or deficiency of which they are ashamed are notoriously intolerant of that same fault or deficiency in others. Thus the parvenu who is secretly conscious of his own social deficiencies talks much of the 'bounders' and 'outsiders' whom he observes around him, while the one thing which the muddle-headed man cannot tolerate is a lack of clear thinking in other people."

The fault if admitted as part of their own mental content would create discord; to obviate this it is projected on to other people, or the same facts in others are recognized with undue disapprobation. Examples of this process are seen in prison work in those criminals in whom efforts at reclamation have failed and whose lives have been spent in warring against society. They may ultimately project their faults on to the prison officials or the community whom they accuse of being their enemies and responsible for their downfall. So also in these two women. Their sexual desires were intolerable to their own moral training and peace of mind. To gain this mental tranquillity they projected their wishes on to others whom they so came to believe were desirous of possessing them.

Cases of projection must not be confused with the allied condition of identification. Tansley (15) describes this as a condition "in which our desires are projected upon occurrences in real life or in fiction, and our own personality temporarily identified with one of the actors in these occurrences." Not only is the interest of many novels for the reader thus explained, but the attraction of sensational trials for certain individuals also. The condition appeared to be the explanation of an offence committed by an old man who wrote filthy letters to imaginary people and dropped them in a shop. He admittedly identified himself with one of the actors in the scenes he depicted, and clearly also hoped to debauch the saleswoman at the same time.

5. CONCLUSION.

In conclusion I would add that although certain of the cases which have been referred to are insane and others mentally defective, and may be dealt with by the courts according to the provisions of the Lunacy and Mental Deficiency Acts, yet the majority of sexual offenders are held to be legally responsible; many are borderline cases, some merely vicious. I would further point out that the psychological interpretations that I have put before you would not offer a complete explanation of these offences, even if dealt with more fully. But, if accepted, may not some such considerations take us a step further along the difficult path of understanding?

If, as yet, we are unable to ascertain why one individual reacts towards his environment in a manner entirely different to his fellows, or whether such differences are psychopathic, endocrinopathic, or the result of other inter-reactions, it would yet appear their divergencies could be most easily studied at their commencement. A high authority has said that the future progress of medicine lies with the family physician, who has opportunities of

studying the evolution of disease from the beginning, usually denied to the consultant or laboratory worker. And those of you who, through being taken into the family councils of your patients, are in a position to observe from its commencement such abnormal behaviour as I have attempted to describe, should be able to throw light on the subject to those of us who, as a rule, only see the cases at a later stage.

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The Malarial Treatment of General Paralysis.⁽¹⁾ By NORMAN B. GRAHAM, M.C., B.A., M.B., D.P.M., Senior Assistant Medical Officer, Belfast Mental Hospital, Purdysburn.

WHEN in the year 1917 Dr. Wagner-Jauregg, Chief of the Psychiatric Clinic of Vienna, inoculated nine patients suffering from general paralysis with the blood of a case of benign tertian malaria, he was only testing a theory he had formed many years previously. In the interval he had been treating his cases of general paralysis by injections of tuberculin, typhus vaccine, etc., and with encouraging results. Remissions produced by these efforts were more frequent and more lasting than those which occurred in untreated cases, but a lasting remission only rarely followed.

Of his nine original cases, three were advanced general paralytics

⁽¹⁾ A paper read at the Spring Meeting of the Irish Division held at the Stewart Institution, Palmerstown, co. Dublin, April 23, 1925.

and the remainder more recent. Of the latter six, three are, I understand, still alive and at their accustomed work. Since then he has adopted this method to the exclusion of all others, but follows up the malarial treatment with a course of salvarsan.

Other workers in Vienna are now treating all cases of neurosyphilis with an intensive course of salvarsan, followed by induced malarial fever and then again a second course of salvarsan. By this means, they allege, they have obtained excellent results from all points of view.

This method of Jauregg's, with or without the salvarsan, is being carried out almost universally in England, America and on the Continent, and from time to time results appear in medical publications.

As the different workers do not group their results similarly, it is difficult to obtain a correct estimate of the success obtained, but if the headings "recovered" "greatly improved," "discharged," are collected under one heading as "greatly improved," a second group may be made to cover those cases who show a good remission, and who are able to be employed in their several hospitals, while a third group might well cover those who have shown some improvement, those not improved, and those who have relapsed.

Using these groups, then, out of 910 cases reported on I find that—

33 *per cent.* can be characterized as "greatly improved," 20 *per cent.* as showing a good remission and capable of employment, while 32 *per cent.* belong to the unimproved or slightly improved. Deaths account for 15 *per cent.*

Records are available of 910 cases of general paralytics treated by malaria, 300 of whom have been discharged to their homes as greatly improved or recovered, and many of these are actively employed at their previous occupations.

Induction of malaria has therefore proved to be, at least for the present, the best treatment for such cases.

The question is as to how this result is obtained.

A series of blood-counts soon eliminated any idea that a leucocytosis was the factor accountable, for at no period during or after the course of the fever in the several cases that I examined periodically did the leucocyte count rise above 10,000. A count of 4,000 to 6,000 was most often found.

Many are of the opinion that the beneficial agent is the high temperature reached during the course of the malarial fever. Temperatures varying from 104° to 106° F. are quite frequent. Strength is added to this view from the investigations of Weichbrodt and Jahnelt, who found that the chancres of rabbits inoculated

with syphilis regressed and disappeared when these animals were exposed to a temperature of 107° to 109° F. in three intervals, while it is known that the spirochætes fail to grow between the temperatures of 104° and 106° F.

Others think that there may be a biological influence at work—an antagonism between the causative organisms of the two diseases, supporting their views from the rarity of the incidence of general paralysis in tropical countries where malaria is endemic. Dr. Berwitz in a letter to the *American Medical Journal* supports this view. He states that in Hainan, China, probably all the nine million of the population harbour malarial parasites—it being a universal disease. Syphilis is extremely common; he estimates that 60 *per cent.* of the population are syphilitics, but neuro-syphilis is a rarity. In his eight years' residence there he has never seen a case of general paralysis, and only three of tabes. He propounds the question—Does the active and latent malaria affect the invasion of the nervous system by the spirochætes?

On the other hand Schwartz records a patient, a case who in the fifth year after ten attacks of malaria developed general paralysis following a primary sore fifteen years previously. Before leaving this part of the subject perhaps it is worth while mentioning an analogous cure described by Dr. Delgado of Lima, Peru, and employed by the natives of certain localities in Peru. Those natives who suffer from "Uta"—a leishmaniosis of the skin and mucous membranes—leave their particular district and go to a district where malaria is endemic, the tradition being that after a number of malarial attacks the skin sores cicatrize and become cured.

In January of last year this method of treatment was adopted at the Belfast Mental Hospital. Prof. Yorke, of the Tropical School of Medicine, Liverpool, crossed to Belfast, bringing with him some mosquitoes which had fed on malarial general paralytics at Whittingham Mental Hospital.

These mosquitoes were allowed to feed on four of my cases, three of whom developed malaria of the simple tertian type, and from these a series of cases have been inoculated until to-day fifty-five have been so treated.

Fortunately for me the number of general paralytics admitted during the latter months of 1923 and during 1924 was much above the average, thus enabling me to carry on from case to case without losing the strain. At present general paralytics are searched for most assiduously, as there is now considerable difficulty in carrying on.

Prior to inoculation all cases thought to be general paralytics have this diagnosis confirmed by a serological examination.

After as long an interval as possible following the treatment

and just prior to discharge a complete re-examination is done for the purpose of recording the improvement, if any, serologically.

Method of Treatment.

The selected patient has injected into the subcutaneous tissue of the back at the angle of the scapula 2 or more c.c. of infected blood taken from the vein of a patient already suffering from tertian malaria. The actual time of the withdrawal of the blood relative to the incidence of the rigors is of no consequence.

In the course of from six to twenty-three days, with an average of eleven, according to my series of cases, malarial parasites appear in the blood, their appearance generally occurring after the first rigor exhibited by the patient. In several cases I found the parasites present in the blood prior to the onset of the fever.

The patient is allowed to have a series of rigors, the number being determined by his physical condition and a maximum of twelve aimed at.

He is then given 10 gr. of quinine sulphate three times daily for three days, the fever promptly disappearing after the first or second dose and the parasites about two days later.

The rigors are in many cases very severe, temperatures of 106° being occasionally seen, but as a rule the patients submit and make no complaint, and indeed even when there is a daily rigor replacing the one on alternate days their power of resistance is surprisingly good.

At first I fed these patients fairly liberally, but as jaundice was apt to occur, I have now for some time past given only milk, or in addition a light meal during the period of normal temperature, between rigors. Following the exhibition of quinine a liberal diet is allowed, and to this they rapidly respond by regaining what weight they had lost in the febrile period.

During the course of the fever signs of the expected and hoped-for improvement are not much in evidence. The grandiose and excited become, perhaps, less so, and the demented become filthier in their habits if that is possible, all of which may be due to the increasing physical weakness.

Following the termination of the treatment a gradual progressive improvement takes place in the majority of cases. There is both a physical and a mental improvement. Weight is put on, delusions become less prominent or disappear, and the filthy habits controlled. Perhaps the last is the most striking feature, as it is evidenced by a sweeter smelling ward and a great saving of sheets and blankets.

A willingness to assist in ward work accompanied by a feeling of mild euphoria soon follows, to progress further into a willingness to work in an out-of-doors working squad. I had for a period a

squad of twelve treated general paralytics under control of one of themselves who was *parolled*, and the engineer reported that it was the hardest working party he had. These are the good and encouraging results obtained, but many others are much less hopeful. Some improve up to a point, and then remain stationary for a period and relapse later on.

There was no selection of cases for treatment. All cases were infected, so that the strain might be kept alive, and lately this has been becoming more and more difficult owing to the falling off of general paralysis in the new admissions. Only one case failed to become infected after inoculation. Several were inoculated on a second occasion, in an endeavour to improve on the result of the first, but though they again became infected, recovery took place spontaneously after two or three rigors.

Five cases suffered from a malarial relapse, which was stopped by the giving of quinine in four cases, and in the fifth the fever was allowed to run its course. This patient had four rigors of mild degree, then the fever ceased and the parasites disappeared.

Complications arising during the febrile period proved of little import: Herpes labialis occurred frequently, while severe jaundice developed in two cases who gave a history of alcoholism. Mild jaundice occurred several times and disappeared when the diet was reduced.

Results of Treatment.

Of the fifty-five cases treated up to the present, this paper will only deal with the first fifty, as the others are too recent for definite report.

Arranging the results in groups similar to those already decided on, eighteen are "greatly improved," fourteen of these have been discharged and the other four await discharge, and are at present useful workers in the institution. Seven can be placed in the second group as "well improved," fifteen belong to the third group, and ten died.

Or as percentages: 36 *per cent.* belong to the first group, 14 *per cent.* to the second group, 30 *per cent.* to the third group, while 20 *per cent.* died—a result comparable to those previously mentioned. Of the fourteen who have been discharged, six are again at their previous occupations, and lack of work, they inform me, only withholds five others. The remaining three are too deteriorated for active employment away from the supervision of their relatives.

All these discharged cases report to me at three-monthly intervals, and there is, I think, with one exception, a continued improvement to be observed in them.

Undoubtedly the best results were obtained in those who received treatment at an early period of their disease.

In an endeavour to estimate the value of the treatment according to the type of general paralysis, I arranged the cases broadly under the three types—"expansive and excited," "depressed," "demented." Twenty-one were of the first type, eleven were depressed, and eighteen were demented. Twelve of the greatly improved came from the first type, five from the depressed class, and only one from the simple demented form. Or put in a different way, a good result is ten times more likely to occur if the case belongs to an acute form than if it belongs to the simple demented type. No doubt this is due to the earlier admission and less damaged state of those whose conduct is at variance with social customs than is the case of the insidiously developing dement.

Convulsive Attacks.

Ten cases gave a history of convulsive seizures prior to treatment. Six of these had had a single apoplectiform attack. One had had two such attacks, and the remaining three suffered from repeated epileptiform fits.

No apoplectiform seizures have been observed in any case subsequent to treatment, but two of the three subject to epileptiform attacks continue to have them, one very rarely, and the other at a greatly increasing rate. One of the discharged cases who is much deteriorated has since his discharge developed epileptiform attacks.

One case took a severe seizure during the course of his malarial fever and died without regaining consciousness.

General Remarks.

When considering eighteen cases who have been placed in the "greatly improved" group in more detail, there is found to be a complete psychological recovery in fifteen, the remaining three showing a certain amount of mental enfeeblement.

On the physical side there was a gain in weight in all, the alteration being estimated over the period from admission to a date three months following the termination of the course of malaria. The average gain was 20 lb., the minimum 11 lb., and the maximum 36 lb. All showed a great improvement in speech, gait, tremors and handwriting, but in one of these speech has again become very defective.

In no case has an Argyll-Robertson pupil reaction disappeared, though in several cases previously sluggish light reflexes have become brisker and the consensual reflex reappeared. This latter

statement is not precise, as variation in the amount of light, the personal factor of the examiner, etc., allow for inaccuracies.

In no case have absent knee-jerks reappeared. Results on other variations of this reflex are too indefinite.

From the serological point of view results are still scantier. Thirteen cases have been completely examined and all show a decided fall in the number of cells present in the cerebro-spinal fluid; this is a very prominent feature. The amount of globulin also, as shown by the Ross-Jones and Pandey tests was found to be diminished.

The number of sigma units in five cases showed a definite improvement; the Wassermann reaction was also improved in three cases.

The gold sol test exhibited in nine cases an alteration of the curve, but in no instance was this alteration well marked.

Gerstmann states, as a result of his examination of a large series of cases, that the spinal fluid findings are modified gradually, and only become definite after a considerable lapse of time. It is therefore possible that better results would have been found could the examinations have been carried out at a later date. The urgent demands of the patients and of their relatives for discharge forced me to do the lumbar punctures within four months of the termination of treatment in each case.

The malarial treatment was not in any case supplemented by any other method.

Fatal Cases.

The number of cases proving fatal either during treatment or subsequently was, as I have already stated, ten.

These must now be considered and the rôle of the malaria as the primary or secondary cause estimated. Three cases were very advanced paralytics who lived for some months after termination of treatment from which they derived little or no benefit, and who died as the result of their progressive deterioration. One developed a typical convulsive seizure and died without regaining consciousness. Another case, a fortnight after treatment, and just after he had been allowed up, developed an abscess in his thigh. This was of tubercular origin, and ultimately became septic owing to his filthy habits and constant interference with dressings. He died just one month later in a very septic state. In none of the above five cases could the malarial infection be regarded as a factor in the causation of death. In the remaining five it undoubtedly was a factor, as two of them developed pneumonia within seven days of termination of treatment and the other three died from exhaustion due to

malaria coupled with a previous debility resulting from their paralysis.

Records of the examination of the brains of general paralytics who had received malarial treatment and died are not numerous. Lewis, Hubbard and Dyar carried out a very exhaustive examination of four such brains. They failed to find spirochætes in two of these, but the other two showed the presence of a few apparently damaged ones. A more striking feature and one common to all these brains was the greatly diminished amount of plasma-cell and lymphocytic infiltration of the perivascular spaces. Jossman and Steenarts reported in 1923 that no spirochetæ were found in the eight brains they had examined, while Gerstmann states that the brains of three of his cases who had had complete remissions and died later of inter-current maladies showed pathological changes so poorly developed, that did he not know they had been cases of general paralysis he would have had great difficulty in recognizing them as such.

None of my cases came to autopsy.

Conclusions.

To conclude, a summary of the results obtained at the Belfast Mental Hospital last year shows :

1. Out of fifty-five unselected cases of general paralysis in all stages of the disease, 36 *per cent.* were considerably improved and suitable for discharge.

2. All these cases showed marked psychical improvement, but that this improvement was not accompanied by a parallel one in the physical signs.

3. Serologically their improvement was less obvious, but that a further examination at a later date would be advisable in order to determine more accurately the value of the treatment.

4. Apoplectiform seizures following the treatment were conspicuous by their absence.

5. Complications are negligible and fatalities due to the treatment not more than 10 *per cent.*—a percentage somewhat higher than the average of other workers.

6. *Malarial* treatment is the more beneficial the earlier it is instituted in the course of the disease, and that it undoubtedly offers the best prospects of any treatment so far available of brightening the outlook of cases of general paralysis of the insane.

I am greatly indebted to Dr. Houston, *O.B.E.*, of Royal Victoria Hospital, Belfast, for carrying out the serological examinations of the cerebro-spinal fluids, and to Dr. S. J. Graham, Medical Superintendent of Belfast Mental Hospital, for his permission to read this paper.

The Sensitivity of the Sympathetic Nervous System to Adrenalin in Some Cases of Mental Disorder⁽¹⁾. By WM. McWILLIAM, M.B., Ch.B., D.P.M., Senior Assistant Medical Officer, Inverness District Asylum.

LAST summer we had admitted to our hospital a case of the involution period in the female, which presented such notable features from the clinical aspect that I was stimulated to the discovery of the "whys" and "wherefores" it presented. An involution case, I found myself confronted with certain problems of an endocrinological nature, which are the experience of all psychiatrists.

These problems included the fundamental relationship of mind and body, the place of emotion in abnormal mental processes, and the old conflict of which the Lange-James theory is only one viewpoint. Disorders of emotion and consequent faulty judgments and beliefs are but the normal expressions of a "mind diseased," though such inconstant factors in the various psychoses. The importance of the sympathetic nervous system with its viscerosensory relationships, and especially with the endocrine organs, could not but attract attention from the view-point of emotional disorder.

The further fact then obtruded itself that this same sympathetic system in its turn had as its master one of these endocrine organs, the adrenal gland, or to particularize, its chromaffin tissue. The question then arose: "How will the sympathetic nervous system in cases of mental disorder react to administration of extract of medulla of the adrenals?"

At this stage it might be of advantage to recall that Langley has differentiated in the vegetative nervous system that which he calls the autonomic from the sympathetic system. The former consists of a cephalic portion which proceeds from the mid-brain and the medulla oblongata and a sacral portion. It presents a functional antagonism to the sympathetic portion. Noting this antagonism and the different physical signs which arise on stimulation of the respective portions of the vegetative system, Eppinger and Hess have given the name of vagotonics to individuals in whom the activities of the autonomic predominate—of sympatheticonics to individuals in whom the sympathetic excels. Adrenalin, as the master of the sympathetic, is the sympathetic excitant, its injection producing a definite symptom-complex, the characteristics of which I shall later detail.

(¹) A paper read at a meeting of the Scottish Division held at Inverness, June 5, 1925.

To-day I give you some of the results, in the hope that they may interest you from the scientific standpoint, and that I may later have the benefit of your opinion.

I would here admit that the fallacies of such a "reaction" are many and obvious. They arise chiefly from the complexity of the endocrine system. The adrenal cortex would seem to be associated with growth, but so are the pituitary and the pancreas. The pancreas, again, in addition to being one of the great factors in the metabolism of sugars, is the sympathetic depressant, in contradistinction to the supra-renal medulla, and so on. These factors make the symptom-complexes of "vagotonia" and "sympathicotonia" so unreliable, as in essence they are only "relative," and in them lie, too, the source of many of our fallacies.

As to the effect of the administration of adrenalin in the normal individual, may I quote Sharpey-Schafer?

"In man the subcutaneous injection of a dose of from .5 to 1.5 mgrm. of adrenalin causes within a few minutes a slight elevation of arterial pressure with pallor of the face and extremities produced by peripheral vaso-constriction. The rise of blood-pressure, although slow in appearing, is long-lasting: it is accompanied by a quickening of the pulse."

In my series of cases, I injected subcutaneously .5 mgrm. of a solution of adrenalin chloride, using in all cases the same preparation. As the blood-pressure varies in all individuals with the period of the day at which it is taken, the drug was administered at approximately the same hour in every case. These precautions were taken to obviate a few, at any rate, of the many possible flaws in technique.

The technique consisted of taking the subject's blood-pressure, and then injecting subcutaneously the dose of adrenalin I have mentioned. Ten minutes afterwards the pressure was again taken, and the process repeated at ten-minute intervals up to an hour.

During the course of the reaction, physical changes, *e.g.*, tremors, flushings, etc., and any change in the affective state were recorded.

The types of case for investigation were selected from the manic-depressive psychosis, dementia præcox, and various cases of melancholia, which did not belong to the manic-depressive group.

I give short notes on the several cases, with the types of reaction which were observed.

Mrs. C—, æt. 45, admitted May 29, 1924. A psychosis of the climacteric, characterized by depression, agitation and distress, arising in the course of an acute hallucinosis.

This patient remained acutely ill for five months, and then suddenly recovered from her hallucinations and depression. It was remarkable the change in her whole facies, and also that the recovery coincided with what would have been a menstrual period. Adrenalin reaction was first taken two days after recovery.

December 3, 1924 : Syst. bl. pr. rose from 180 mm. to 208 mm. in ten minutes, and by the end of thirty minutes had fallen to 166 mm. General physical reaction was marked by palpitation, tremors and flushing of the face. She felt very nervous.

December 5 : Syst. bl. pr. 164 mm. Reaction to adrenalin less intense—little erythematous flushing, less palpitation, less distress and less tremor. The improvement in patient's mental state has been progressive. Curve markedly depressed, syst. bl. pr. falling to 140 mm. in ten minutes and rising to 154 mm. at the end of 20 minutes, and remaining stationary.

December 8 : Syst. bl. pr. 160 mm. Reaction is less marked and the patient shows increasing mental stability.

December 11 : Patient had relapsed slightly on this occasion, having had an adverse emotional stimulus the previous day. General reaction showed increased distress and an increased state of *folie de doute*. Restlessness +, tremors +. Vaso-motor constriction and dilatation of pupils. The curve again showed a depressor trend, syst. bl. pr. falling from 160–140 mm. in 10 minutes, and coming to rest at 145 mm. at the end of 50 minutes.

December 18 : Little reaction shown, there being a preliminary fall followed by a short rise. Syst. bl. pr. 128 mm., falling to 120 mm. in 10 minutes and rising to 136 mm. at 20 minutes and remaining there. Mentally unstable, but has not relapsed to condition prior to December 3.

January 10, 1925 : Has again improved. Syst. bl. pr. 134 mm., rising to 156 mm. at end of 10 minutes, falling to 142 mm. at 20 minutes and remaining there.

This patient has, with several relapses—all of a very minor nature, and partly of psychic origin—shown progressive improvement, and would seem to be well on the way to a permanent recovery. I may add that her heredity is poor, and that at the great sexual crises of her life she had had minor mental attacks.

The psychic trauma which so coloured her relapses and the whole of the delusions and hallucinations of the acute state of her illness dated back to the patient's first physical and mental strain at the age of 13. The accompanying emotional shock gave the whole of her subsequent life a strong religious bias, and it was obvious that the whole atmosphere of the Sabbath was conducive to the mild relapses. She had also believed during the hallucinosis that her relatives were all dead and damned, and it was the visit of a sister which produced the first relapse.

The reactions in this case were more atypical than in any of the subsequent ones, and in the present state of our knowledge of the relationship of the sympathetic nervous system to the endocrine organs, and of the inter-relationship of these various organs, conclusions can only be grossly hypothetical, and of no real value.

I would only point out some important facts :

1. The relationship of the psychosis to the reproductive organs, as evidenced by the periods at which the illness recurred, and by the fact that sudden disappearance of the gross symptoms so closely coincided with menstruation.

2. The uniform "pressor" and "depressor" characteristics of the curves. These could hardly have been brought about by a previous injection of adrenalin, as two depressor curves followed one another at a week's interval without an intervening administration of adrenalin.

3. The progressive fall in the blood-pressure of the patient, both after the conclusion of each reaction and throughout the whole of the patient's convalescence.

4. During the first reaction there was vaso-motor dilatation

and flushing, and during the final ones of the series a normal vaso-motor constriction.

Regarding the depressor curve, I would again quote Prof. Sharpey-Schafer :

"The possibility of the same auto-coid substance acting under some circumstances as a hormone or excitant, and under other circumstances as a chalone or depressant, must be borne in mind."

In the literature of the adrenals I have found that small doses of the auto-coid of the medulla may produce depressant reactions, but this hardly accounts for the variability of the reactions in the present case, nor does, I think, the fact that extracts of most bodily tissues, in virtue of their histamine content, lower the blood-pressure, apply here.

The whole picture these reactions present bears to me a close analogy with the "flushings" and vaso-motor and cœnæsthetic experiences of the patient.

M. M—, or F—, female, æt. 37. This patient is a melancholic, and might be classified as of the "agitated" type. She shows depression plus great mental distress, and a delusional scheme based on sin, unworthiness and marital infidelity. Her reaction to adrenalin was short and sharp, and showed a marked secondary curve. Her syst. bl. pr. at the beginning of the test stood at 122 mm., rose within 10 minutes to 160 mm., and fell in the next 10 minutes to 118 mm. This was followed by a sudden rise of 10 mm. during the next 10-minute period, but at the end of 30 minutes the patient's systolic pressure was at 120 mm., and remained there.

During the reaction the patient showed an increase of psycho-motor excitement, pallor of the face, fine generalized tremor, and a picture of the emotion of "fear."

A. M—, male, æt. 50. Patient has been in a state of chronic mania during the past two years. He is elevated, noisy, abusive, destructive in his conduct, and full of the most nonsensical fancies. He is notoriously untidy, a humorist, and delights in his mannerisms and in exhibitionism. The patient's superficial circulation, too, is poor. He suffers from œdema of the lower extremities, and crops of boils and slowly-healing ulcers are signs of lowered vaso-motor tone.

His reaction to adrenalin was very similar to that of the preceding case (*M. M— or F—*). His syst. bl. pr. was at first high—140 mm.—and is accounted for by his age and arteries. Within 10 minutes it had risen to 166 mm., and by 20 minutes had reached its maximum of 172 mm. This was followed by a most abrupt fall to 120 mm. in 30 minutes. In the subsequent 20 minutes the pressure gradually rose to 144 mm., and by the end of the hour it had dropped to 138 mm.

Comparing the case of *A. M—* with *M. M— or F—*, we have the same abrupt rise and fall and the slight secondary curve. The first curve, I think, is due to the stimulation of an excitable sympathetic nervous system, and the second to a further out-pouring of adrenalin from the suprarenal under that same stimulation. The curves compare with the unstable emotional states of the patient. The chronic maniac shows a sympathetic which can be stimulated, but more slowly than in the acute condition; that it is readily exhausted, and that the secondary curve attains its height more slowly. Possibly the suprarenal itself is only slowly able to cope

with the work it has to do ; that the secondary curve would seem to show. In brief, these two cases substantiate the observations of Cannon on the output of adrenalin in the *Bodily Changes in Pain, Hunger, Fear and Rage*.

I. M. D—, female, æt. 19 ; dementia præcox ; katatonia. Adrenalin reaction is very slight, there being no emotional changes and no gross physical signs. The patient's vaso-motor circulation is very sluggish, limbs becoming swollen as the result of gravity. Curve shows a very slight preliminary fall and a very flat prolonged rise, ending in 50 minutes.

A reaction is produced compatible with the emotional picture of katatonia, with the vaso-motor condition and with the diminished coagulability of the blood described so many years ago by Dr. Lewis Bruce.

The pathological work of Sir Frederick Mott on the adrenal glands in dementia præcox gives further light on this abnormal curve.

J. E. R—, male, æt. 24. The patient is a youth of great stature. Height 6 ft. 2½ in., and with correspondingly large hands and feet. He almost suggests gigantism (hyperpituitarism at the adolescent period). Height at 17 years 6 ft. 1 in.

Reaction to adrenalin : Preliminary syst. bl. pr. 116 mm., and showing a very sluggish rise, only to attain its maximum of 140 mm. at the end of 30 minutes. There were no general symptoms. Pupils did not dilate until the end of 40 minutes.

Curve shows a sluggish excitability of the sympathetic nervous system.

This patient provides one of what may be an interesting series—interesting from the diagnostic standpoint. To me stupor is a clinical symptom-complex, which may arise in the course of both the dementia præcox and manic-depressive psychosis, and the difficulty often arises as to which psychosis the case belongs.

D. B—, male, æt. 20. Admitted November 17, 1923. Stupor. Heredity bad.

D. B— provides us with a typical picture of vagotonia. Among the symptoms he shows are profuse salivation, faulty habits, contracted pupils, increased gastric secretion and cold sweaty skin. His pulse is slow—60 per min.—and his oculo-cardiac reflex is vagotonic.

This patient was admitted in November, 1923. He was depressed and pre-occupied by hallucinations. He later lapsed into a condition of catalepsy, gradually becoming stuporose. He now shows the physical signs we have just noted, plus the mental ones of negativism and stupor. He will not speak, pays no attention to what goes on around him, and is depraved in his appetites.

Reaction to adrenalin : Preliminary syst. bl. pr. 114 mm. It then rises sharply in 10 minutes to 158 mm., and very slowly falls to 126 mm. This curve is very similar to those previously seen in the cases of *A. M—* and *M. M—* or *F—*.

A second case of stupor (*M. J. G—*) was one known definitely to belong to the manic-depressive type, and the type of curve corresponded with the previous result.

A further case of katatonia (*J. McA—*, male) shows in marked degree the vaso-motor accompaniments and the physical and mental signs of mild stupor. Here, again, the curve is of the same type as those seen in our other cases of dementia præcox.

J. A—, male, æt. 57, admitted May 30, 1924. This patient was obviously an involution case, his mental picture being that of extreme hypochondria.

On admission his bodily state showed the signs of auto-intoxication, *vid* the alimentary tract, plus atheroma of his vessels. His bowels were very constipated, and his tongue thickly coated. Refusal of food being persisted in on the grounds that he had no throat and could not swallow, and that his bowels were blocked up. His affective state was one of profound depression and subjective pre-occupation.

During the following year the mental picture varied little, and the patient remained depressed, introspective and deluded. All his food is digested, he says, in his throat, as he has no stomach or bowels.

In April, 1925, he developed an œdema of his forehead and eyes. This œdema began as a localized swelling in the middle line of his forehead, pitting on pressure. It gradually extended to fill the loose tissues round the orbits and then disappeared. The obvious diagnosis was that of an angio-neurotic œdema.

Angio-neurotic œdema is little more than a name, as the pathology of the condition is not known, though the present view is that it is a "local expression of the presence of a circulating toxin, prone to occur in persons of a nervous temperament." It is significant that the same authority states that patients show "other signs of vagotonia," and that treatment consists in giving either belladonna or adrenalin, attempts being made to stimulate respectively the parasympathetic and the sympathetic divisions.

Patient's reaction to adrenalin: We had a preliminary low syst. bl. pr. 128 mm. and diast. 96 mm. The curve showed a slow and gradual rise to a maximum of 148 mm. at the end of 30 minutes and a very rapid fall to normal—130 mm. in 10 minutes, and a slight rise in the next 20 minutes. There were no accompanying emotional or physical changes.

Observations on this case were:

(a) A slow reaction and a poor response with a relatively good secondary curve. (b) That the excitability of the sympathetic is below the normal, and that the output of adrenalin is relatively good. (c) That these facts are compatible with (1) the vaso-motor condition, and (2) the patient's mental state.

The affective state of J. A— depends on the weakness of the stimuli arising from the sympathetic and concentrated on the optic thalami, and his delusions on the misinterpretation of such stimuli being dependent on his emotional state.

Among other cases in which the test was employed were one of asthma with accompanying depression and one which strongly suggested Addison's disease.

P. McK—, æt. 65, admitted March 17, 1925. The most marked physical feature of this case is a deep pigmentation of the patient's trunk, being quite negroid in degree over her chest and abdomen. She is poorly nourished, and her syst. bl. pr. is 104 mm. She is listless and anergic, and complains of weakness. Mentally she is acutely depressed, groaning and crooning to herself, and is subjectively preoccupied. The pigmentation was first noticed a year prior to admission, following "influenza," and has progressively increased in depth. Family history and ancestry are negative.

Reaction to adrenalin: The auto-coid produced practically no change in patient's pressure curve, and there were no emotional or physical accompaniments.

The test was repeated on the following day. The syst. bl. pr. was found to be higher—116 mm.—and there was a slight reaction to 134 mm. after 10 minutes, with accompanying pallor of the face, tremors and feeling of nervousness. There was a further fall from the 15th–20th minutes, when the reaction would seem to have terminated.

This type of curve might be looked for in cases of Addison's disease, pointing to suprarenal deficiency; the analogy of the katatonic curve is noteworthy.

J. McE—, male, æt. 47. Has attacks of acute mental depression, which coincide with those of asthma. During some of his later and more severe attacks the patient has appeared to be more degraded in his habits, being very wet and dirty. In the intervals the patient is much brighter in mind, but there is an under-current of mild depression, which is explained by the patient's dread of future attacks, and by a belief that he will never be better. He supplies a good picture of the nervous type of asthmatic, with the attacks due to vagal crises and subsequent bronchial spasm. But the occurrence of incontinence of urine suggests that the pathological condition is not strictly limited to the vagus, but that it is rather a vagotonia, with the whole parasympathetic involved.

Reaction to adrenalin: (*a*) *During attack*.—Preliminary high syst. bl. pr. of 150 mm., falling in 10 minutes to 110 mm. Thereafter there was a slight rise to 118 mm., falling to 100 mm. at the end of an hour.

(*b*) *After attack*.—Preliminary syst. bl. pr. is low, 108 mm., rising slowly to 120 mm. at the end of 20 minutes and falling to 104 mm. at the end of an hour.

The injection of adrenalin produced rapid relief of the patient's symptoms.

Observations on this case were:

(*a*) Case shows a poor response of the sympathetic between attacks. (*b*) That the auto-coid readjusts an abnormal balance by stimulating the sympathetic, and so antagonizing the action of the vagus on the bronchial muscle. (*c*) With the readjustment of the balance to the patient's "normal" there is a marked reduction of the blood-pressure. There is a notable analogy here to the case of Mrs. C—.

General Conclusions.

1. That the reaction to adrenalin corresponds to the excitability of the sympathetic nervous system, and the degree of emotional instability, or of emotional defect.
2. That there exist "negative" states of depression, which arise from inexcitability of the sympathetic.
3. That certain unknown factors, other than those of small dosage and histamin or cholin content of animal tissues, can cause a depressor adrenalin reaction.

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The Value of Simple Laboratory Tests in the Diagnosis of Neuro-syphilis as compared with the Wassermann Reaction.⁽¹⁾ By S. GROSSMAN, M.R.C.S.Eng., L.R.C.P. Lond., Assistant Medical Officer, Cardiff City Mental Hospital, Whitchurch.

THE complement-fixation test, or, as it is known more popularly, the Wassermann reaction, was at one time considered the only reliable laboratory test for the diagnosis of neuro-syphilis. It is a complicated biological reaction, and requires expert knowledge, theoretical and practical, before any deductions can be made as to whether a patient suffers from neuro-syphilis or not. In the majority of cases the cerebro-spinal fluid has to be sent to a special pathologist attached to some general hospital, and in many cases it means sending the fluid to other towns.

For the last twelve months I have tried to compare simpler methods with the Wassermann test, to enable physicians to investigate the cerebro-spinal fluid in the hospital itself. Accurate methods are paramount, as on them depend not only the diagnosis, but also the prognosis of the case. Different pathologists have tried to simplify the complement-fixation test, but even the simplest test is very complicated, and requires special apparatus and much time, which cannot always be afforded.

The results of the methods employed were compared with the results of the Wassermann reaction in every case, and the findings are very interesting.

Four methods were used, each of which gave satisfactory results, but I consider that only by correlation of findings can information of value be obtained. A positive Wassermann reaction of the cerebro-spinal fluid is proof of syphilitic disease of the central nervous system, either interstitial (syphilis affecting primarily the meninges, blood-vessels and the neuroglia) or parenchymatous (syphilis affecting primarily the neurons—as seen in general paralysis and tabo-paresis). In stationary cases of locomotor ataxia the fluid is usually negative. The reaction may be regarded as always positive in general paralysis. A negative cerebro-spinal fluid and serum practically exclude a diagnosis of general paralysis (1). The early diagnosis of general paralysis is important, as the result of the treatment with tertian malarial blood, by producing fever, is very encouraging, and, since Pötzl discovered the means of keeping

(1) A paper read at the Spring Meeting of the South-Western Division held at Brislington House, Bristol, on April 30, 1925.

the malaria parasite alive for 60 hours at least, every case of general paralysis or tabo-paresis should be given a chance of treatment.

Normal cerebro-spinal fluid obtained by lumbar puncture is water-clear and limpid; its specific gravity is 1006–1008. It contains a trace of albumen, but no globulin and no fibrin. Three of the methods employed by me depend upon the presence of proteins—globulin and albumen—in the cerebro-spinal fluid, and their precipitation by certain reagents.

The first method is that of Nonne-Apelt (2). It is a very satisfactory test. Equal parts of cerebro-spinal fluid and a saturated solution of ammonium sulphate are shaken together in a test-tube. The reaction is positive if cloudiness appears within three minutes. Depending on the quantity of globulin present in the fluid it may be cloudy, opalescent, or only slightly opalescent in the same way that the Wassermann reaction may be retarded, weak, strong, or very strong. If cloudiness appears within three minutes the quantity of globulin is excessive, and the fluid may be considered positive. The Ross-Jones (3) modification of the Nonne-Apelt consists in the formation of a white ring at the junction of the saturated solution of ammonium sulphate and cerebro-spinal fluid. The white ring, really precipitated globulin, should also appear within three minutes.

The second method is that described by Weichbrodt (4). Three parts of a solution of corrosive sublimate (1 in 1000) are mixed with seven parts of cerebro-spinal fluid (.3 c.c. 1 in 1000 corrosive sublimate plus .7 c.c. cerebro-spinal fluid). Results should be noted immediately. Fluid may be clear, opalescent, or cloudy. Cloudy fluid is very suggestive of neuro-syphilis.

The third method is that by Boltz (5). This test probably depends upon the presence of minute quantities of cholesterol in the cerebro-spinal fluid of patients suffering from neuro-syphilis. It is a colour test, and the result of it in every way coincided with the results of the Wassermann reaction. The technique is very simple, 1 c.c. of fluid is placed in a test-tube; to it .3 c.c. of pure acetic anhydride is added drop by drop. The mixture is gently shaken; to it is added .8 c.c. of pure concentrated sulphuric acid, and the whole gently shaken. Within five minutes the colour of the fluid is examined against a white background. A blue-pink or lilac shade shows the fluid to be positive. If the fluid remains clear or yellowish in colour, the fluid is negative. Boltz seems to be of opinion that it is not a cholesterol reaction, as the addition of sulphuric acid alone does not give the characteristic change of colours as in the Salkowski (6) reaction. Although the theoretical explanation of the colour test is not the object of this paper, I think

that it is very likely a cholesterol reaction after all, being due to minute quantities of cholesterol kept in solution by the protein in the fluid of a patient suffering from neuro-syphilis. Cholesterol is found in almost every part of the body. It is insoluble in water, but a little of the white of an egg mixed with water gave the characteristic colour of the acetic anhydride sulphuric acid test. Boltz's test is really a slight modification of the Liebermann-Burchard (6) reaction.

The fourth method consists in examining and estimating the cells in the spinal fluid. They should be made as soon after obtaining the fluid as possible. The Fuchs-Rosenthal (7) counting chamber (made by Hawksley) is undoubtedly the most satisfactory. The chamber is divided into sixteen large squares, each of which is again divided into 16 small squares ($\frac{1}{400}$ sq. mm.). The height of the chamber is .2 mm., therefore the volume of fluid in the chamber is 3.2 c.mm. To disintegrate any red cells and to aid in differentiating white cells the spinal fluid is diluted with a stain in the ratio of 10 parts of fluid to one part of stain. One of the best stains is the following mixture :

Sat. alc. sol. methyl violet . . .	15 c.c.
Glacial acetic acid . . .	50 „
Distilled water . . .	100 „

Count the cell contents in all the squares, divide by 3.2 and then multiply by $\frac{1}{10}$. The kind of cells is important. Small and large lymphocytes are the predominating cells in syphilitic involvement of the central nervous system. Normally there are 2-3 cells per c.mm. of fluid; if more than 10 lymphocytes per c.mm. are present, neuro-syphilis should be suspected (8).

Sixty cases were examined, including 28 cases of general paralysis and one case of locomotor ataxia. In every case of general paralysis the Wassermann reaction was positive; the Nonne-Apelt, Weichbrodt and acetic anhydride sulphuric acid tests were positive. There was a varying leucocytosis. The Wassermann reaction was negative in the case of locomotor ataxia, as were the Nonne-Apelt, Weichbrodt, and acetic anhydride sulphuric tests. The remainder consisted of cases of epilepsy, psychosis due to arterio-sclerosis, senile dementia, dementia præcox, cases of melancholia, mania, and psychosis due to alcoholism. In these the Wassermann reaction was negative. The Nonne-Apelt, Weichbrodt, and acetic anhydride, sulphuric acid tests were also negative.

CONCLUSIONS.

1. The laboratory diagnosis of neuro-syphilis can be simplified by using the methods mentioned above.

2. A few graduated 1 c.c. pipettes and a few test-tubes is the whole apparatus required for the first three methods, and the whole laboratory investigation takes only about 30 minutes.

3. The reagents are easily obtainable and cheap.

4. The tests were found to coincide with the findings of the Wassermann reaction.

5. In every case of general paralysis the reactions were positive and there was an increase in the number of lymphocytes in the cerebro-spinal fluid.

6. The more advanced and active the syphilitic condition of the nervous system, the more positive were the Nonne-Apelt, Weichbrodt, and acetic anhydride sulphuric tests.

It is worth mentioning Pötzl's technique for transporting tertian malarial blood for inoculating patients suffering from general paralysis.

Ten to 15 c.c. of venous blood are withdrawn from a patient suffering from tertian malaria, and allowed to run into a sterile glass flask of 30 c.c. capacity, containing 10 to 15 small glass sterile beads. The flask is closed with a sterile cork and the whole gently shaken for ten minutes, at the end of which time the blood becomes defibrinated and partially hæmolyzed. The serum is then gently poured into a sterile test-tube, corked, and placed either in an ice-chest or a thermos flask containing ice at 0° C. The amount of blood to be injected into a patient varies from 2 to 6 c.c., either subcutaneously or intra-muscularly.

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Blood-Sugar Studies in Mental Disorders. By S. A. MANN,
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London County Mental Hospitals, Maudsley Hospital.)

INTRODUCTION.

It is a common experience in the investigation of mental disorders that glycosuria is frequently found, thus indicating a tendency in such cases to a faulty carbohydrate metabolism. With the exception of epilepsy, this occurrence of glycosuria has been noted in most mental conditions. Intermittent glycosuria is met with in general paralysis (Kraepelin) (1); Bond (2) and Strauss (3) note it in about 10 *per cent.* of their cases. In dementia præcox Schultze and Knauer (4) did not observe glycosuria in the apathetic form of hebephrenia, but often found it to occur with catatonic excitement. With other observers (see Allers (5)) they record the marked association of glycosuria with depressed states, while its occurrence in mania was infrequent except in markedly excited and resistive cases.

In all these instances the glycosuria appears to be dependent on the emotional state of the individual, as indicated by Mita (6) in hysteria and neurasthenia, by Von Jaksch (7), Arndt (8), and Horn (9) for traumatic neurosis, by Goodhart (10) for neurasthenia, by Travaglini (11) for catatonia and senile dementia, by Strauss (3) for imbecility, by Schultze and Knauer (4) for dementia præcox, imbecility and general paralysis. Moreover, apart from mental disorders, glycosuria is often associated with emotional states in normal individuals. Folin, Denis and Smillie (12) found glycosuria in students following difficult examinations; Cannon and Fiske (13) report its occurrence with excited spectators of a football match. Ricci (14) found a transient glycosuria in 6 out of 15 cases following the information of the necessity of an operation. Lastly, the effect of emotional disturbance, especially of a depressive character, in aggravating the glycosuria in diabetic patients is generally admitted (Van Noorden (15)).

With mental disorders attempts were made to investigate this disturbance of carbohydrate metabolism by estimating the sugar tolerance (Ehrenberg (16), Graziani (17), Lugiato (18) Trepsat (19), Heidema (20), and Raimann (21)) according to the glycosuria following glucose dosage (150 grm.). With the exception of epilepsy, in which condition Raimann records a rather higher assimilation power for glucose, the work of these observers shows a tendency to a lowered tolerance in mental conditions associated with depression, and Raimann reports the most marked lowered assimilation in melancholia.

The investigation of carbohydrate tolerance, however, must depend on three factors—the rate of absorption, the glycolytic and glycogenic functions of the organism, and the renal threshold for sugar; there may be marked variations in the renal threshold, and therefore the estimations of carbohydrate tolerance depending on

the appearance of glycosuria after oral administration of glucose is open to error.

Attention was next drawn to blood-sugar values in various mental disorders, and the work of various observers (Weston (22), Raphael and Parsons (23), Kooy (24), Uyetmasu and Soda (25), and Wuth (26)) showed that somewhat higher fasting levels may occur in most mental conditions, but the averages fall within normal limits.

Within recent years, however, the methods for blood-sugar determination have improved in accuracy and simplicity, and it is now possible to investigate carbohydrate metabolism by the estimation of blood-sugar values at frequent intervals following the ingestion of a glucose meal.

In this work the author presents the results obtained from the blood-sugar curve following glucose dosage in 152 cases of early mental disorder admitted to the Maudsley Hospital. As will be seen later, the main finding is the frequency of an abnormally sustained hyperglycemia following glucose ingestion. To investigate further this abnormality consideration has been given to various influences affecting the blood-sugar curve, and results will be presented showing the influence of sympathetico-mimetic drugs (adrenalin and pilocarpine), both on fasting blood-sugar levels and following glucose ingestion. The series of cases will also present examples of the action of endocrine secretions on the blood-sugar curve. In view of the theories concerning blood-sugar regulation, attempts have been made to investigate the blood diastase under various influences; and, lastly, in a following paper the results are given of the investigation of the glycogenic function of the liver by means of the laevulose test in a series of 74 cases of mental disorder, and 18 normal individuals.

TECHNIQUE.

There are now a number of reliable and simple methods for the estimation of blood-sugar on small quantities of blood. Of these may be mentioned the titrometric methods of MacLean (27), and Hagedorn and Jensen (28), and the Calvert (29) modification of the Folin and Wu (30) colorimetric technique. In this investigation the latter method has been used, and was selected after careful examination of its accuracy because its simplicity enables a large number of estimations to be carried out at the same time.

The method depends on the collection of a small quantity of blood from a finger-prick, 0.16 c.c. by pipette or about 200 mgrm. weighed in a platinum capsule on a torsion balance; the blood proteins are removed with tungstic acid, the protein-free filtrate boiled with alkaline copper tartrate solution; phosphomolybdic

acid solution is added, producing a blue colour by the interaction with, and in proportion to, the cuprous salts present. Instead of using standard glucose solutions for comparison, Calvert has analysed the colour formed by the interaction of cuprous salts and phosphomolybdic acid, and has prepared a glass colour disc, standardized for all values of glucose with a correction curve adjusting colorimeter and reduction variations. I have found the method to give reliable and accurate results, with the essential precaution that it is necessary to check the glucose values of the standard disc, not only when fresh copper and phosphomolybdic solutions are prepared, but also frequently with the same solutions.

Various criticisms of the method have been published. Rothberg and Evans (31) rightly state that the blue colour produced with the original Folin and Wu technique by the interaction of phosphomolybdic acid and cuprous salts is not exactly proportional to the amount of glucose present, correct values being only possible when the colour produced by the sugar solution to be estimated is nearly the same as that produced by the standard dextrose solution; in the Calvert technique these variations are obviated by the standardization of the colour disc for all values of glucose, and accurate correction. Lynch (32), in a survey of blood-sugar methods, states that in his opinion it is impossible to match exactly a blue liquid with a piece of blue glass, and that comparison of the relative depths of two colours, when they are not exactly the same tint, is often very difficult. I am unable to endorse this opinion, and can only consider it as the result of superficial examination rather than reasonable experience of the method. The criticism of Stanford and Wheatley (33) relating to variations dependent upon the concentration of the alkaline copper tartrate solution and the temperature at which the phosphomolybdic acid is added have been dealt with by Calvert (29), and resulted in slight modification of the technique which has added to the accuracy and utility of the method. For the estimation of sugar in small quantities of blood collected in the platinum capsule (about 200 mg.) or in the 0.16 pipette with final colorimetric determinations against a standard glass disc, I have found the method reliable, accurate and time-saving.

The cases examined have been given a glucose meal of 50 grm. in 8 oz. of water following a twelve hours' fast. The majority were able to come to the laboratory, but were kept resting during the test. Blood-sugar determinations were made at intervals during two hours or more following the glucose ingestion.

Janney has recommended a standard glucose meal of 1.75 grm. per kilo body-weight. The theoretical meal would be about 2.5 grm. glucose per kilo body-weight, based on the findings of Janney (34) and Fisher and Wishart (35), that up to 80 *per cent.* of injected glucose is absorbed in the course of two hours, and Sansum and Woodyatt (36) that the maximum intravenous tolerance rate of

man and animals without glycosuria is 0.85 grm. per kilo body-weight per hour. Janney's standard meal would be about 100 grm. glucose for a body-weight of 10 st., but, as will be seen later when the normal blood-sugar curve is considered, the same type of blood-sugar curve is obtained with a glucose meal from 30 grm. upwards, and larger dosage does not appear to be necessary.

MATERIAL.

The cases examined are a series of 152 patients (45 male, 107 female) admitted to the Maudsley Hospital for early uncertified mental disorders. They varied from the milder neuroses to the more acute forms of mental trouble. The acute psychotics were mainly of the depressed or stuporose types, because of the difficulty of dealing with the manic, the agitated and the impulsive. A large number of adolescents of the dementia præcox type were included, together with depressed cases of all ages.

NORMAL BLOOD-SUGAR CURVE.

For purposes of comparison with the results obtained in this investigation it is necessary to consider the normal blood-sugar curve. Blood-sugar levels following the administration of various sugars in varying amounts have been investigated by MacLean and de Wesselow (37) and Spence (38) in "normal" individuals at different ages. The ingestion of glucose in the fasting individual is followed by a rise in blood-sugar until a concentration in the region of 0.17 *per cent.* is reached; this rise attains its maximum in 45 minutes to one hour and is followed by a rapid fall, so that from 90 minutes to 2 hours after the glucose administration the original fasting level is attained. In the normal the maximum rise is obtained with a glucose meal of 25-30 grm.; increasing the dosage does not increase the maximum concentration, but tends to prolong the resultant hyperglycæmia, but even with a meal of 100 grm. the original fasting level is easily attained within two hours of ingestion. In the normal individual the hyperglycæmia resulting from the administration of carbohydrates lies about the level of 0.17 *per cent.*, which is the normal renal threshold for glucose, and cannot easily be forced above it. Janney and Isaacson (39) state that the absorption rate for pure glucose solutions in normals is fairly constant; also it has been shown that as much as 20 *per cent.* of a large carbohydrate meal may be recovered from the stomach after the blood-sugar has fallen to normal (Calvert (40)), and that absorption must still be proceeding. The fall, then, cannot be due to cessation of absorption, and it is assumed that the rapid drop in the normal

curve is caused by the intervention of a storage mechanism, by a glycogenesis which stores the sugar at a greater rate than it appears in the blood. The influences concerned with this storage mechanism will be considered later; at present it is sufficient to quote MacLean's remarks that "as a working rule, if the blood-sugar fails to return to its original level within about $1\frac{1}{2}$ hours after a single 50-grm. dose of glucose, we may consider that a defect in storage is present."

The oxidation of the ingested glucose by the tissues is a small factor in the reduction of the blood-sugar content. Bornstein and Holm (41) have shown that an increase in the respiratory quotient occurs within 30 minutes to one hour of the ingestion of glucose (100 grm.). The increase appears at the point at which the blood-sugar commences to fall, and continues for some time after the initial level has been reached. Sanger and Hun (42) estimate that the sugar oxidized during $2\frac{1}{2}$ hours is only 18 *per cent.* of the ingested carbohydrate (100 grm.), but the metabolic rate is not increased with larger dosage, the CO_2 output being the same for small or large amounts of carbohydrate.

The work of MacLean and his co-workers is in confirmation of that of other investigators in connection with the blood-sugar curve in healthy adults (Baudoin (43), Frank (44), Tachau (45), Jacobsen (46) and Sakaguchi (47)). Of these observers Sakaguchi records details of blood-sugar curves taken at ten-minute intervals in healthy young adults following a 100 grm. sugar meal. In his cases the highest point varied between 0.133 and 0.191 *per cent.* blood-sugar; the rapid fall in concentration after the maximum was reached was constant in all his cases, reaching the original level in 50 to 90 minutes after the meal had been taken. In the work of Hopkins (48), Hamman and Hirschmann (49) and Bailey (50) on the relation of hyperglycemia and glycosuria, there is substantial evidence that in the normal case the renal threshold for glycuressis is at a blood-sugar level of about 0.17 *per cent.*

There is, however, some alteration in the type of curve with age. Infants under one year of age show a much smaller blood-sugar rise with appropriate sugar dosage; children behave much the same as young adults; but although the maximum blood-sugar concentration may vary from about .110 to .210 *per cent.*, *the rapid return to the fasting level within 90 minutes* is a constant feature in the healthy young or middle-aged individual.

Spence (38) investigated a series of five apparently healthy men of ages varying from 62-75 years of age, and found four to show high blood-sugar levels and sustained hyperglycemia two hours after a 50-grm. glucose meal.

Factors influencing the normal blood-sugar curve.—Labbé and Theodoresco (51) and Jacobsen (46) have recorded that the ingestion of fat causes a diminution in the rise of the blood-sugar curve. This finding, however, has not been confirmed by other workers. Oliver and Haworth (52) have found that ingested fat exerts a decided influence on the blood-sugar curve, and that there is an association between fat and carbohydrate metabolism. Fat in quantity given 4–12 hours before 50 grm. of glucose, or if the sugar is suspended in fat, causes a marked rise and a prolongation of the blood-sugar curve. Excess of fat in the blood, therefore, appears to interfere with glycogenesis. If, however, a large quantity of fat be taken 18–24 hours before the glucose meal, a more rapid fall of blood-sugar is noted. Fat properly absorbed into the tissues appears to increase the storage of carbohydrate, and if not absorbed or mobilized by calcium the storage is inhibited.

The influence of preceding carbohydrate diet is of importance. Lower curves may result in individuals who for some days previous to the test have been on a diet rich in carbohydrate. This fact finds explanation in the work of Foster (53) and Hamman (54), who showed that a second glucose meal does not produce a marked blood-sugar rise, *i.e.*, the glycogenic mechanism is in a state of marked activity. On a preceding non-carbohydrate diet the converse is true, and higher curves may result owing to the previous lack of exercise of the storage mechanism.

For this investigation the cases have been examined after more than a twelve hours' fast, and have been on ordinary hospital diet. In general the question of diet does not enter into the nature of the results obtained.

There is evidence that blood-sugar values may be influenced by surrounding temperature. Warm-blooded animals show an increase of blood-sugar in the cold (Bang (55)), and an increase may also be noted in animals and man in the tropics (de Langen (56)). I am unaware of the exact influence of temperature on the blood-sugar curve, but with the cases examined we are only concerned with room temperature variations.

The state of bodily activity is also of importance: light work may increase and hard labour decrease blood-sugar values (Bang (55) and Bergsma (57)). The cases reported were kept at rest during the experiment.

In this investigation the author has had the opportunity of examining 14 normal cases from laboratory workers and members of the hospital staff. The maximum blood-sugar concentration following a 50-grm. glucose meal varied from 0.15–0.21 *per cent.*, but the rapid return to or below the original .125 fasting level within 90 minutes to 2 hours was a constant finding. The massed blood-sugar curves are shown in Fig. 1.

RESULTS.

The results obtained in the mental cases will be presented in the following form, the main classification depending on the blood-sugar level two hours after glucose ingestion (50 grm.).

- (1) Cases showing blood-sugar curves approximating to the normal type, *i.e.*, maximum blood-sugar level not exceeding 0.2 *per cent.*, with return to the region of the original fasting level in two hours.

LXXI.

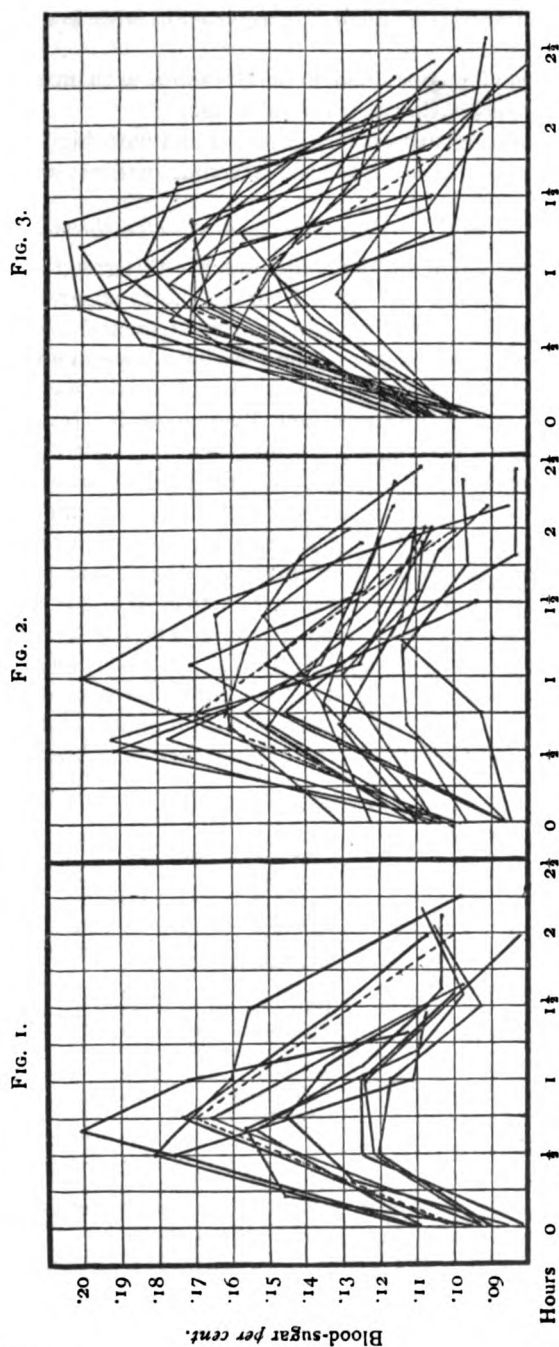


FIG. 1.—Massed blood-sugar curves from fourteen normal individuals. Dotted line: average normal curve.

FIG. 2.—Blood-sugar curves approximating to normal type occurring in early cases of mental disorder (male cases). Dotted line: average normal curve.

FIG. 3.—Blood-sugar curves approximating to normal type occurring in early cases of mental disorder (female cases). Dotted line: average normal curve.

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(2) Cases showing sustained hyperglycæmia with low blood-sugar levels.

(3) Cases showing sustained hyperglycæmia with maximum blood-sugar levels within the normal range.

(4) Cases showing sustained hyperglycæmia with high blood-sugar levels, *i.e.*, maximum values exceeding 0.18 *per cent*.

(1) *Cases with Blood-sugar Curves approximating to the Normal Type.*

Fifty-four patients (20 male, 34 female) fall into this group. They are noted in Table I, and the massed curves shown diagrammatically in Figs. 2 and 3. It will be seen that most mental types are represented in this series of cases; some of them have maintained improvement since their discharge from hospital, others have since been certified. Although the cases show blood-sugar levels approximating to the original fasting value about two hours after glucose ingestion, it will be noted that in general the blood-sugar levels are higher, and there is a tendency to delay before the maximum value is obtained and the storage mechanism sets in, and also a tendency to sustained hyperglycæmia. It is probable that some of these cases would show abnormal curves with increased sugar dosage. A few cases illustrating these tendencies are given (Fig. 4). These cases also illustrate another point of interest; that, although high blood-sugar levels may occur for $1\frac{1}{2}$ hours after the glucose meal, the storage mechanism may set in with marked rapidity, and within 20–30 minutes restore the level to the original fasting value.

TABLE I.

	Males.	Females.		Males.	Females.
Dementia præcox . . .	9	3	Post-encephalitic syn-		
Melancholia . . .	3	9	drome . . .	—	2
Depression . . .	—	2	Paralysis agitans with		
Hypochondria . . .	—	1	depression . . .	—	1
Anxiety neurosis . . .	3	5	Nervous child . . .	1	—
Epilepsy . . .	1	1	Mentally defective . . .	1	—
Epilepsy with hysteria	—	1	Cretin . . .	—	1
Manic-depressive ins. .	—	1	Disseminated sclerosis	—	1
Confusional insanity . .	—	1	Progressive lenticular		
Obsessional neurosis . .	1	1	degeneration . . .	—	1
Paranoia . . .	—	1	Adiposa dystrophia		
Paraphrenia . . .	—	1	genitalis . . .	1	—
			Hysteria . . .	—	1
Totals				20	34

(2) *Cases with Blood-sugar Curves showing sustained Hyperglycæmia Low Levels.*

Eight patients (3 males, 5 females) are included in this series. They are noted in Table II, and their massed curves shown diagrammatically in Fig. 5. This low type of curve has been designated

as a "hypoglandular curve" by certain observers, probably owing to the fact that some cases of endocrine dysfunction may give blood-sugar curves of this type, but, as will be seen later (p. 459), such curves are by no means the rule in these cases. Moreover, reference to Figs. 1, 2 and 3 will show that they may occur with apparently normal individuals, and with patients whose curves do not show a sustained hyperglycæmia, and in all cases it is necessary to bear in mind the metabolic condition of the individual, for low curves may occur in those prone to diet rich in carbohydrates.

FIG. 4.

FIG. 5.

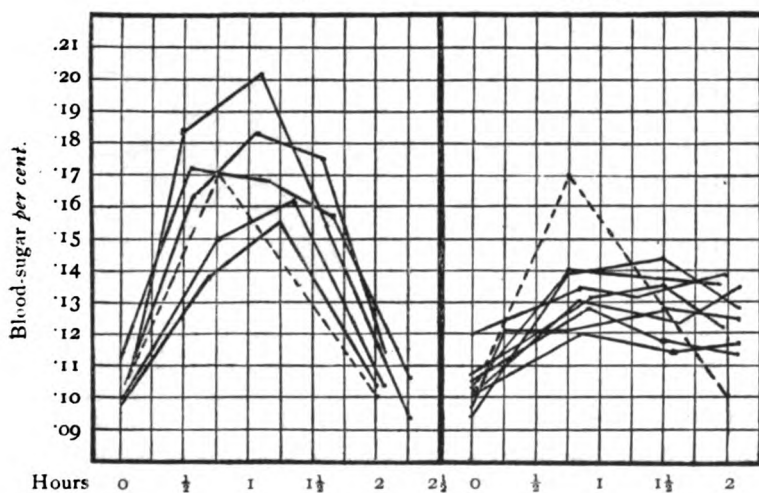


FIG. 4.—Blood-sugar curves approximating to normal type from early cases of mental disorder; showing high and late maximum levels, with rapid glyco-genesis. Dotted line: average normal curve.

FIG. 5.—Showing blood-sugar curves of low level with sustained hyperglycæmia (male and female cases). Dotted line: average normal curve.

TABLE II.

	Males.	Females.		Males.	Females.
Paraphrenia . . .	—	3	Melancholia . . .	1	—
Anxiety neurosis . . .	1	2	Manic-depressive ins. . .	1	—
Totals				3	5

(3) *Cases Showing Sustained Hyperglycæmia and Maximum Blood-sugar Levels within the Normal Range.*

Forty-one patients (9 males, 32 females) are contained in this group. They are noted in Table III, and represented diagrammatically in Figs. 6 and 7.

TABLE III.

	Males.	Females.		Males.	Females.
Dementia præcox . . .	3	2	Epilepsy . . .	—	2
Melancholia . . .	—	6	Mania . . .	1	1
Depression . . .	—	1	Delusional insanity . . .	—	1
Anxiety neurosis . . .	1	10	Obsessional neurosis . . .	1	—
Hysteria . . .	—	4	Chorea . . .	—	1
Paraphrenia . . .	—	3	Korsakow's syndrome . . .	1	—
Post-encephalitic syn-					
drome . . .	2	1			
Totals . . .				9	32

FIG. 6.

FIG. 7.

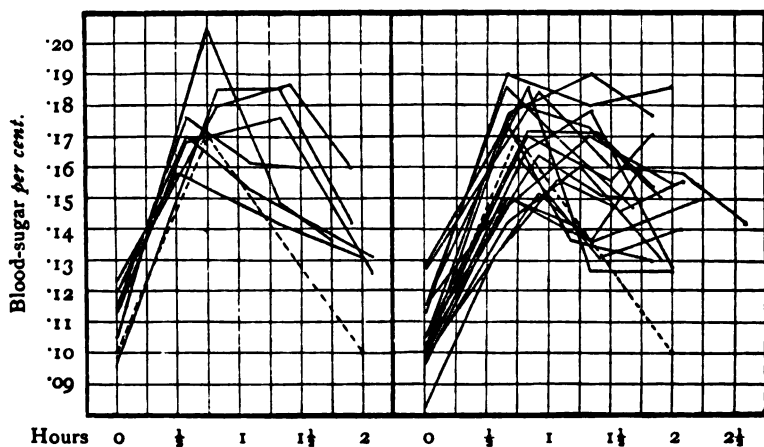


FIG. 6.—Blood-sugar curves of average normal level showing sustained hyperglycæmia (male cases). Dotted line: average normal curve.

FIG. 7.—Blood-sugar curves of average normal level showing sustained hyperglycæmia (female cases). Dotted line: average normal curve.

(4) *Cases showing Sustained Hyperglycæmia with High Blood-sugar Levels.*

Forty-nine patients (13 males, 36 females) are included in this series. They are noted in Table IV, and represented diagrammatically in Figs. 8 and 9.

TABLE IV.

	Males.	Females.		Males.	Females.
Dementia præcox . . .	1	5	Paraphrenia . . .	2	1
Melancholia . . .	8	12	Obsessional neurosis . . .	—	1
Anxiety neurosis . . .	—	10	Acute confusion . . .	1	—
Depression . . .	—	1	Hysteria . . .	—	1
Manic-depressive ins. . .	—	3	Post-encephalitic syn-		
			drome . . .	1	2
Totals . . .				13	36

Considering Groups 3 and 4, as would be expected there was a greater frequency of glycosuria in Group 4, but in these abnormal cases the blood-sugar level following glucose ingestion may exceed the generally accepted renal threshold value (0.18) and rise to 0.25 *per cent.* or more without glycosuria. In both groups cases of anxiety neurosis and melancholia predominate, but as these cases form the greater part of the admissions to the Maudsley Hospital it is impossible to give comparative figures. It will be

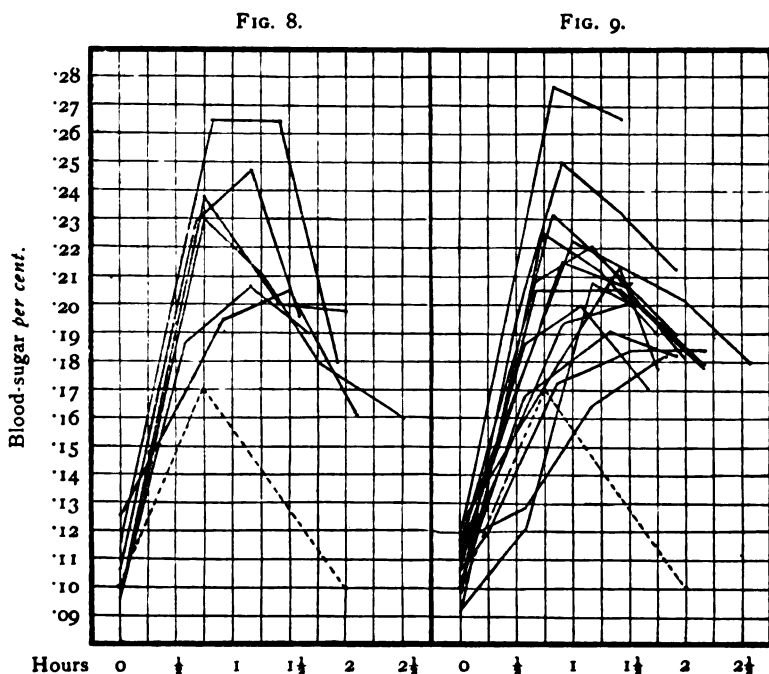


FIG. 8.—Blood-sugar curves of high levels with sustained hyperglycemia (male cases). Dotted line: average normal curve.

FIG. 9.—Blood-sugar curves of high levels with sustained hyperglycemia (female cases). Dotted line: average normal curve.

noted that in all the groups all types of cases may occur. In dementia præcox any type of blood-sugar curve may be obtained, from normal to one showing high levels and markedly sustained hyperglycemia, according to the phase of the mental condition, but it is in the stuporose state that the most marked abnormality is found. In general a blood-sugar curve with sustained hyperglycemia may occur in any mental condition associated with depression, and it is most marked in acute melancholia and stuporose dementia præcox—Group 4.

Reference to Figs. 8 and 9 will show types met with in Groups 3 and 4, in which the blood-sugar rise may be normal and the storage delayed, or there may be both delayed rise and fall of the curve.

With regard to the fasting levels in these cases my results do not indicate that there is any marked variation from the normal range, except in very restless cases. I am indebted to Dr. Le Marquand for the following series of fasting levels on consecutive days in three cases of acute psychosis included in the series; consecutive figures of three normals are added for comparison.

Case.	Blood-sugar fasting levels.									
Marked confusion with restlessness . . .	·100	·103	·109	·098	·111	·118	·100	·106		
Melancholia with an- ergia . . .		·095	·106	·095	·110	·093	·100	—	—	
Marked melancholia with anergia . . .		·100	·095	·100	·100	·100	·100	·088	—	
Normal F.	·100	·100	·103	·093	·093	·109	·103	·106	·112	·116
„ M.	·109	·103	·103	·097	·077	·109	·099	·106	·103	·106
„ F.	·103	·093	·106	·106	·109	·116	·103	·103	·100	·116

VARIATIONS IN THE ABNORMAL BLOOD-SUGAR CURVE.

In certain recoverable cases there is evidence to show that the blood-sugar curve may be taken as an index of the progress of the case, for with improvement the curve tends to become more normal in character, and on recovery may conform to the normal type. From a number of such cases the following are illustrative examples: Fig. 10, showing difference in curve after one month in hospital; Fig. 11, showing curve on admission, on recovery and discharge and four months later; and Fig. 12, showing curve on admission, one month later and on recovery and discharge.

There may also be a change with alteration in mental condition. Fig. 13 illustrates the curves obtained in the stuporose and excited states of a manic-depressive case.

The variations in the blood-sugar curve may also determine the value of treatment. Blood-sugar curves before and after treatment were obtained in eight cases that were on thyroid (5 gr. *per diem*) for one month; the clinical improvement or otherwise was coincident with the variation in the blood-sugar curve. Of these cases Figs. 14 and 15 are illustrative of the beneficial and adverse effect of the thyroid therapy.

FIG. 10.

FIG. 11.

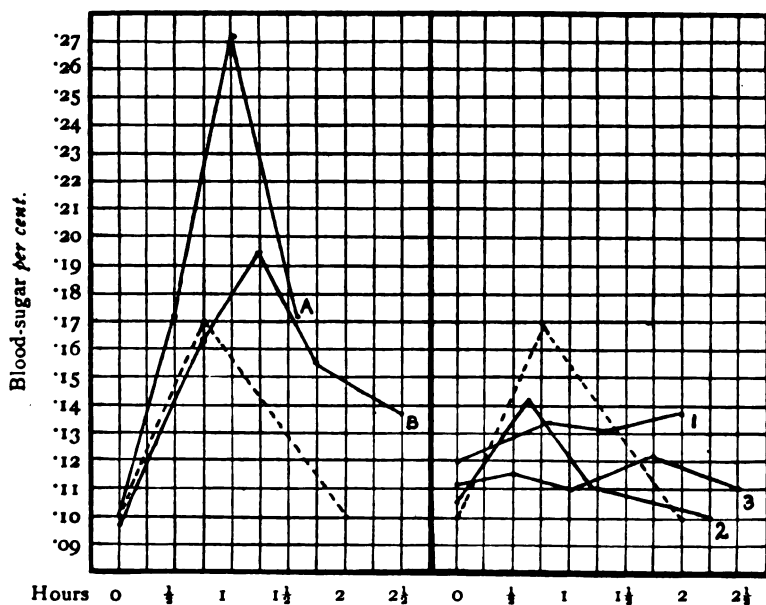


FIG. 10.—Acute melancholia. A. Blood-sugar curve soon after admission.
B. Blood-sugar curve one month later.

FIG. 11.—Anxiety and depression. Blood-sugar curves (1) on admission;
(2) on recovery and discharge; (3) four months later, slight relapse.

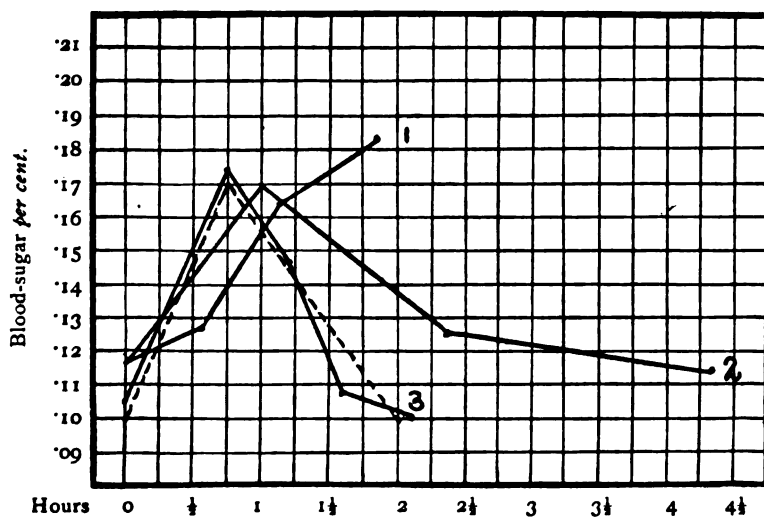


FIG. 12.—Melancholia. Blood-sugar curves (1) on admission; (2) one month later; (3) on recovery and discharge.

BLOOD-SUGAR CURVES IN MENTAL DISORDERS.

Using a standardized glucose meal of 1.75 gm. glucose per kilo body-weight followed by blood-sugar determination at hourly periods, Olmsted and Gay (58) have investigated a series of cases including types of mental disorder. In hysteria 75 per cent. of uncomplicated cases gave normal curves, but with manic-depressive insanity they found variable but high levels after one hour with sustained hyperglycæmia. Drury and Farren Ridge (59), using the same technique as adopted in this laboratory, record the results in 100 insane cases. In epilepsy the blood-sugar curves approximated closely to the normal. Cases of general paralysis, confusional insanity, manic-depressive psychosis, dementia præcox and climacteric psychoses were investigated and showed varying abnormal sugar curves in a good number of the cases. The authors conclude that, amongst the mental symptoms,

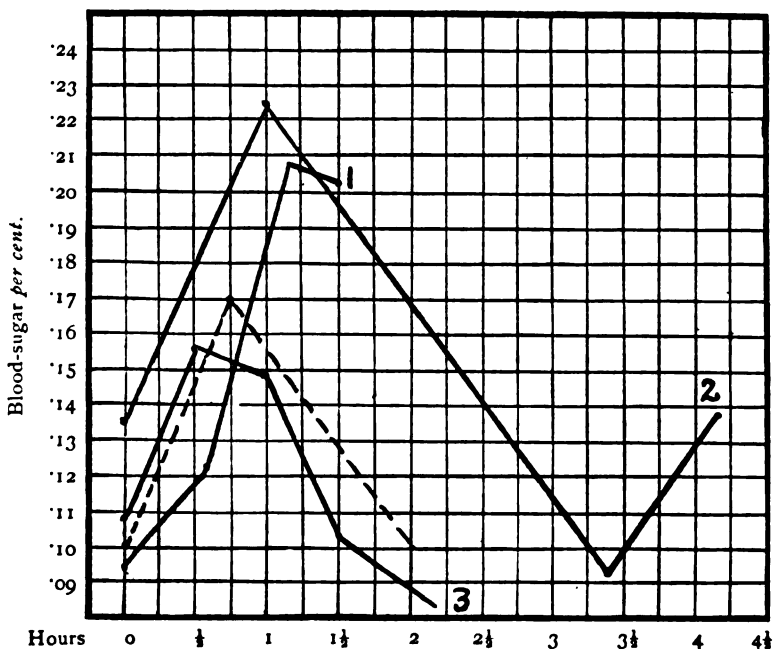
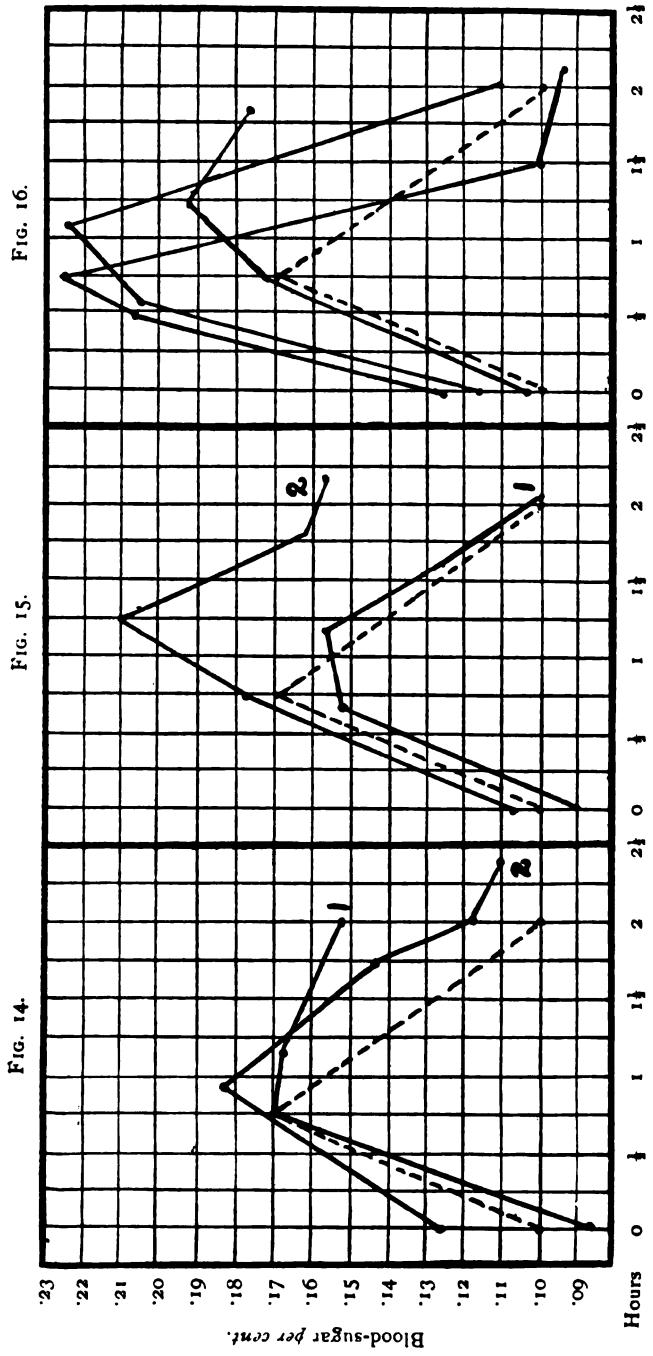


FIG. 13.—Manic-depressive insanity. Blood-sugar curves (1) and (2), depression, stupor; (3) mania.

confusion and melancholia are associated with the greatest disturbance of the sugar metabolism. Holmström (60), investigating the blood-sugar in epilepsy, reports normal values and normal carbohydrate tolerance, and concludes that observed variations have no primary significance. Other investigations have been recorded by Tsuchiya (61) and Schryver (62); their technique being different, the results are not comparable with mine, but they agree in the main fact that in psychoses there is evidence of disordered carbohydrate metabolism. Lorenz (63), investigating the sugar tolerance in dementia præcox and other mental disorders, reports the occurrence of normal fasting levels except in cases of active catatonia, and cases in which evident emotional upsets existed at the time of the test. Patients in the active stages of catatonic dementia præcox gave blood-sugar curves resembling hyperthyroidism; the curves of simple deteriorating dementia præcox resembled those obtained in certain endocrine disturbances, such as dyspituitarism; and the curves of manic-depressive cases (depressed phase) were higher than those found in normal subjects.



BLOOD-SUGAR CURVE VARIATIONS IN DISEASE AND OTHER ABNORMAL CONDITIONS.

Infective conditions.—An abnormal sustained hyperglycæmia following glucose ingestion may occur in various infective conditions.

Olmsted and Gay (58) show sustained curves in a number of cases of focal infection. Pemberton and Foster (64), investigating chronic arthritis, obtained curves showing sustained hyperglycæmia in severe cases, but normal curves were obtained following removal of the septic focus (teeth or tonsils).

Staveley Dick (65) reports hyperglycæmia and high and prolonged blood-sugar curves following glucose administration, after vaccine injection in non-diabetic cases. He would explain this as a defensive hyperglycæmia, but Allen (66), in his comments on these results, regards them as due to toxic depression of pancreatic function. In this connection it is of interest to mention that Rosenthal (67) showed that the injection of diphtheria toxin prevented glycogen formation.

Sustained blood-sugar curves may be found in nephritis (Tachau (45), Bailey (50), Hopkins (48) and Hamman and Hirschman (49)), and in carcinoma (Olmsted and Gay (58), Fredenwald and Grove (68), and Rohdenberg, Bernard and Krehbiel (69)), but there is no characteristic type of curve in these diseases.

In the endeavour to arrive at an explanation of these abnormal findings and their significance, it is necessary to consider the known influences regulating carbohydrate metabolism as expressed by the blood-sugar curve. In mental disorders we are concerned (1) with alteration of blood-sugar regulation in emotional states, and (2) with variations from the normal response to a sugar meal. Following the course of the blood-sugar curve our main attention is drawn to the influences governing absorption and storage—glycogenolysis and glycogenesis, the other factors, combustion and excretion, being of minor importance in the fall of the curve.

For this purpose the following influences will be considered in relation to the blood-sugar curve :

1. The endocrines.
2. The diastatic power of the blood.
3. The influence of the sympathetico- and parasympathetico-mimetic drugs.
4. The influence of acids and alkalies.
5. The glycogenic function of the liver.
6. Absorption.

The endocrine glands are intimately associated with carbohydrate metabolism, and very speculative hypotheses have been advanced from blood-sugar curves regarding specific endocrine function. The balance of endocrine function, and carbohydrate metabolism, are both extremely complex and at present not clearly understood, and these hypotheses are based more on imagination than on actual fact. Certain types of blood-sugar curves are associated with various diseases of the endocrines, but their frequency is by no means a constant feature; also the blood-sugar curve shows a response to endocrine therapy. A brief survey of these facts,

however, will be of interest and helpful in our consideration of the changes found in mental states.

The thyroid and parathyroids.—Fig. 16 represents the blood-sugar curves obtained in three cases of definite hyperthyroidism occurring in the present series. They show the usual characters of hyperthyroid curves, *i.e.*, a fasting level slightly raised or within normal limits, and an ascending curve showing high values; the descent to the original level may be normal, or there may be a sustained hyperglycaemia (Olmsted and Gay (58)) denoting defective storage. The thyroid effect appears to be shown in rapid absorption, increased oxidation and diminished tolerance with glycosuria. Cramer and Kruse (70) have shown that thyroid feeding in animals depletes the liver of glycogen, raises the blood-sugar, diminishes sugar tolerance and raises the respiratory quotient. Sanger and Hun (42) record that in hyperthyroidism ingested glucose may be oxidized at twice the normal rate. Excessive thyroid feeding may induce a blood-sugar curve showing sustained hyperglycaemia.

In hypothyroidism variable blood-sugar curves may occur. In myxoedema low value curves, or high values similar to the hyperthyroid type, may follow glucose ingestion, but the tolerance is generally increased. With cretins low curves and an increased tolerance are stated to be a constant finding. Fig. 17 shows a case of myxoedema with blood-sugar curve of the hyperthyroid type; it is of interest that at first there was no glycosuria with the carbohydrate meal, but following thyroid therapy the tolerance was lowered and glycosuria resulted.

The removal of the parathyroid in experimental animals leads to a reduction of sugar tolerance and to a high blood-sugar curve after glucose administration (Underhill and Hilditch, *etc.* (71) (72)).

The pituitary.—There is evidence to show that the pituitary is concerned with blood-sugar regulation, and its action is antagonistic to the influence of insulin; injection of the anterior lobe is without effect, whereas the posterior lobe causes hyperglycaemia.

The blood-sugar curve in acromegaly is characterized by a high fasting level, high maximum level and a fairly rapid return to the original level, with glycosuria.

In cases of hypopituitarism the blood-sugar curve may be variable; it is the rule for curves of low sugar values to occur. Calvert and Langmead (73), investigating obesity in children, were unable to report any characteristic form of blood-sugar curve in cases of reputed dyspituitarism; they deviated from the normal to a greater or less degree, and presented other variable features. Their work on the influence of endocrine extracts on these blood-sugar curves might be construed as indicating that a properly balanced

FIG. 17.

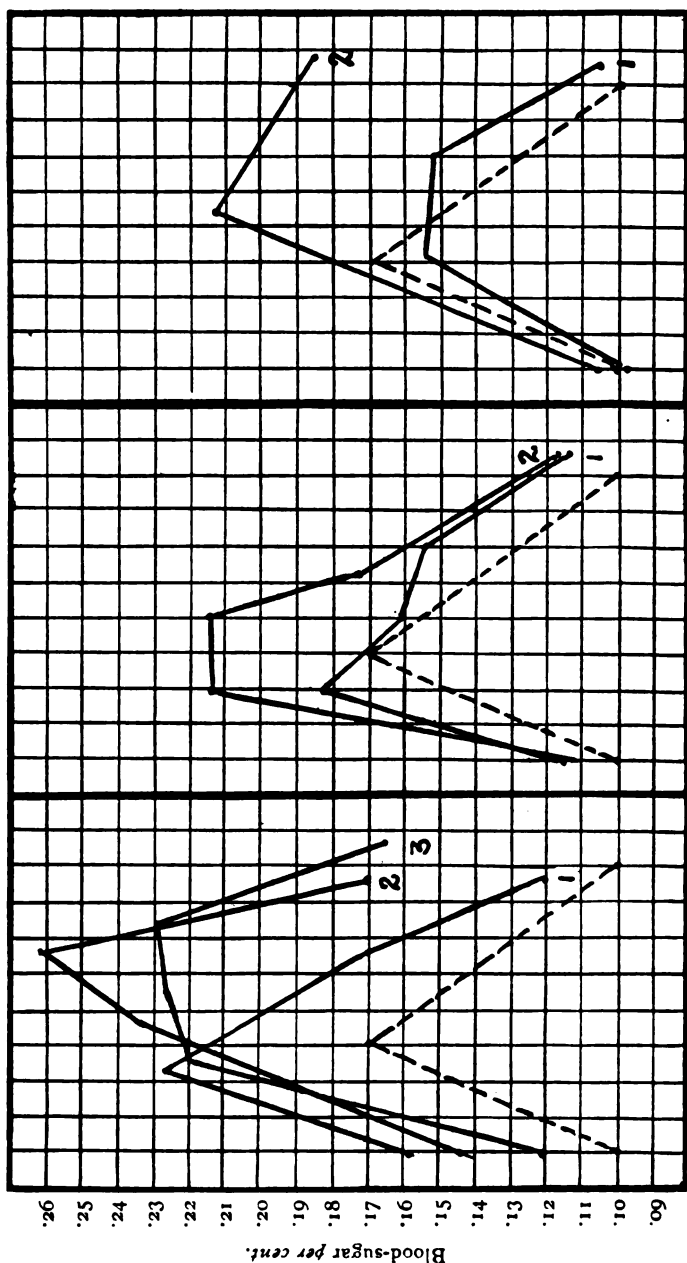


FIG. 18.

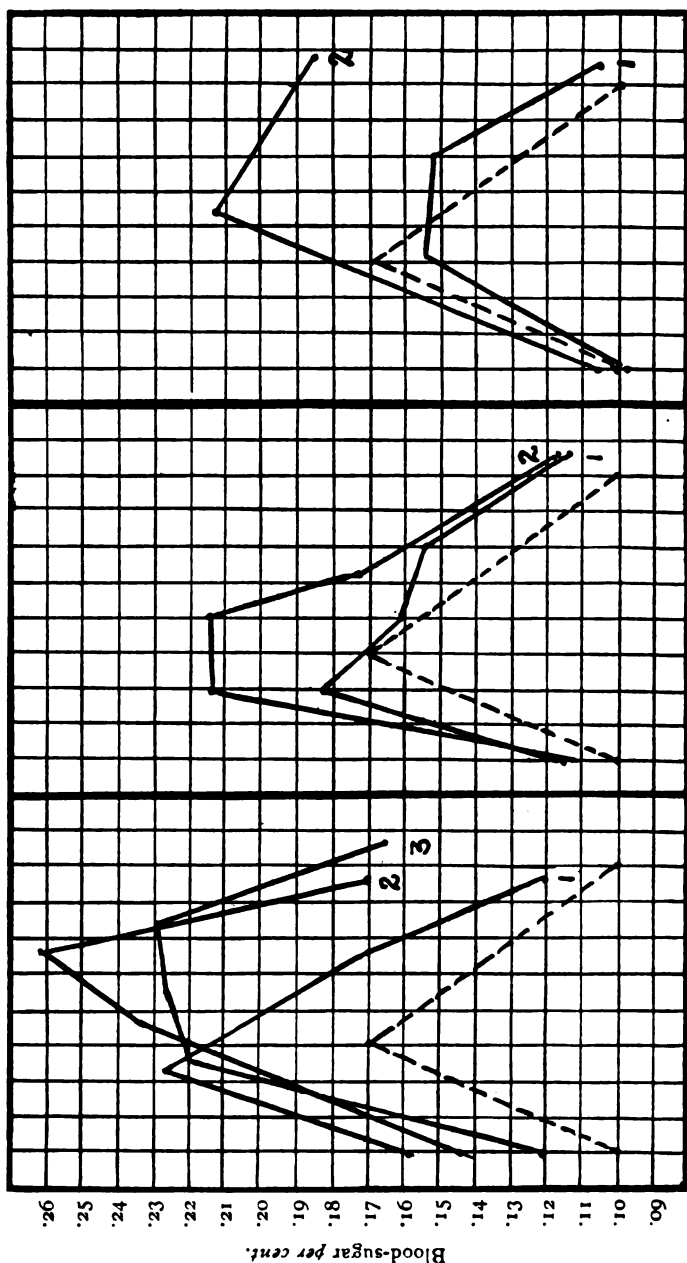


FIG. 19.

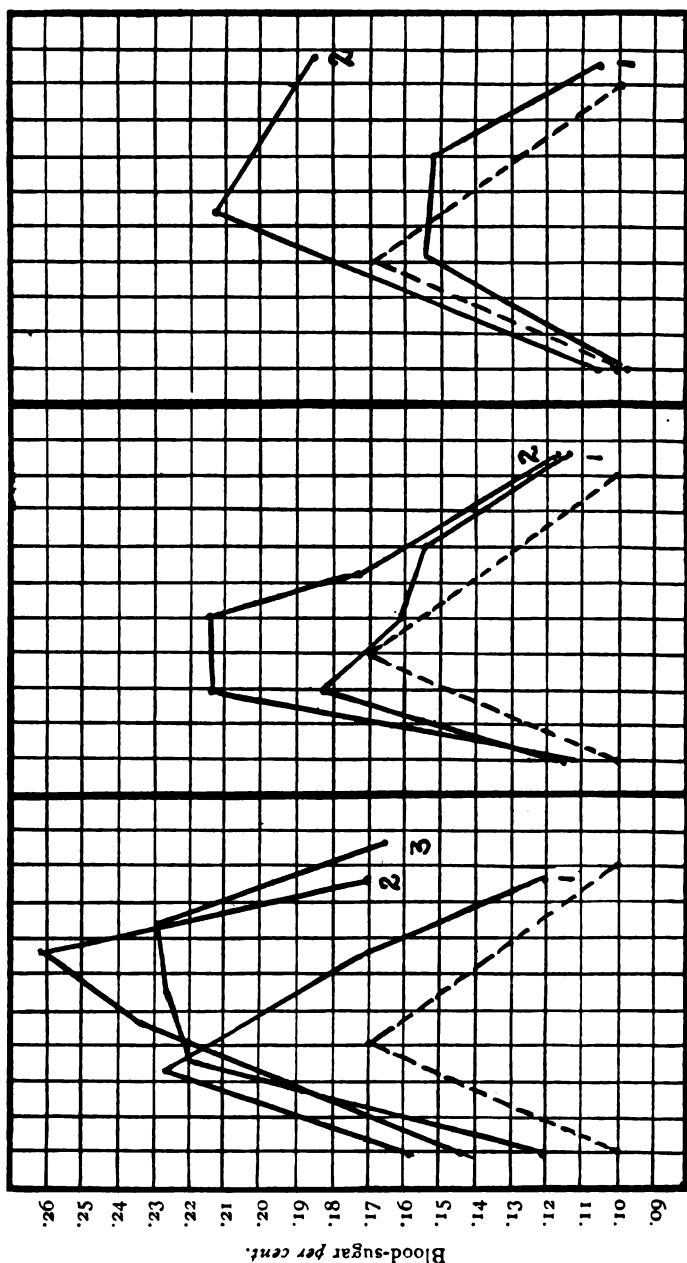


FIG. 17.—Hypothyroidism; melancholia. (1) Blood-sugar curve; (2) and (3) after thyroid therapy, with glycosuria. Dotted line: average normal curve.

FIG. 18.—Normal. (1) blood-sugar curve after 50 gm. glucose; (2) blood-sugar curve after 50 gm. glucose, and adrenalin subcutaneous injection (5 mns. 1-1,000); (3) blood-sugar curve after 50 gm. glucose, and adrenalin subcutaneous injection (5 mns. 1-1,000).

FIG. 19.—Post-encephalitic syndrome. (1) Blood-sugar curve after 50 gm. glucose; (2) blood-sugar curve after 50 gm. glucose, and adrenalin subcutaneous injection (5 mns. 1-1,000).

pluriglandular therapy is required, and that the production of a normal blood-sugar curve may prove a useful guide to treatment.

The adrenals.—The blood-sugar rise following adrenalin injection will be considered later (p. 464). An excess of adrenalin causes glycogenolysis and hyperglycæmia. This action, however, appears to be dependent on thyroid co-operation, for if thyroidectomy is performed previous to the adrenalin injection, the adrenalin is either inactive or much larger dosage is required (Eppinger (74)).

Emotional hyperglycæmia and glycosuria are believed to be due to the same mechanism as the hyperglycæmia and glycosuria following Bernard's *piqûre* of the floor of the fourth ventricle, *i.e.*, splanchnic stimulation to the suprarenals causing hypersecretion of adrenalin and mobilization of the liver glycogen. The effect of adrenalin on the blood-sugar curve is shown in Figs. 18 and 19. In the normal case the blood-sugar rise is rapid, with high values, but the fasting level is reached within the usual two hours; the mental case, however, shows a sustained hyperglycæmia.

The pancreas.—It has long been recognized that the pancreas is essential for glycogenesis, and that dysfunction of that organ results in hyperglycæmia and glycosuria, and the characteristic blood-sugar curve showing prolonged hyperglycæmia. The action of insulin on the blood-sugar curve is too well known to need further mention. The discovery of insulin, however, has enabled more exact information to be gleaned regarding the rôle of the pancreas, in particular the islets of Langerhans, in carbohydrate metabolism (MacLeod (75)). The action of insulin is enzyme in type, *i.e.*, when the substrate is small in proportion to the amount of enzyme, the increasing amount of substrate acted upon becomes less and less, the reaction proceeding according to a logarithmic equation. Its action is concerned with glycogenesis and carbohydrate utilization. The glycogen content of the liver of depancreatized dogs fed with sugar shows a marked increase after insulin injection, and there is also a rise in the respiratory quotient. The blood and liver fat are diminished in amount (*cf.* p. 448). With the blood-sugar curve the pancreatic action is seen in the sudden fall of the blood-sugar values, and its action is apparently decided by the blood-sugar concentration, for when the maximum level is reached—generally about 45 minutes after the sugar has been administered—there is a rise in the respiratory quotient (Bornstein and Holm (41)) and rapid glycogenesis ensues. In cases of mental disorder this pancreatic reaction may be delayed or determined only at higher blood-sugar levels.

It is evident, then, that excessive activity of the thyroid, suprarenals and pituitary (posterior lobe) results in a blood-sugar rise

and diminished sugar tolerance, that adrenalin causes glycogenolysis, and may inhibit glycogen formation, and also that the storage effect (glycogenesis) shown by the fall of the blood-sugar curve is induced by the action of the pancreas.

The mechanism by which these influences effect blood-sugar regulation is unknown, but the work of Langfeldt (76) on the action of endocrine secretions on the glycolytic power of liver diastase is of considerable interest in this direction. He has shown *in vitro* that thyroxin alone has no effect on the hydrolysis of glycogen by liver diastase, but adrenalin so diluted that it has no effect becomes very active when thyroxin is added. Langfeldt considers blood-sugar regulation to be dependent upon the pH of the liver, and, as the result of his experiments and observations, puts forward the following theories regarding the mechanism whereby hyperglycæmias may arise :

(1) By the change of the hydrogen ion concentration of the liver tissue.

Under normal conditions practically only the phosphate and chloride diastase are of importance, and of these the chloride diastase is more important on account of the greater affinity of the Cl ion for diastase. The optimum of the chloride diastase lies at pH 6·8. This hydrogen ion concentration represents neutral reaction at 37° C. Therefore to obtain maximum glycogenolysis the *milieu* of the diastase must be neutral. The action on the blood-sugar concentration of acids given *per os* or by transfusion of the liver, the influence of the gastric juice in depancreatized dogs and the *post-mortem* glycogenolysis are thus explained.

(2) By the displacement of the optimum of the liver diastase to or close to the pH of the liver-tissue.

Such a displacement takes places under the influence of adrenalin, or in a higher degree by the simultaneous effect of adrenalin and thyroïdine. It may be that the diastase forms a complex compound with these substances, as it does with phosphates, chlorides and many other substances, and that the affinity between diastase and adrenalin-thyroïdine extract is greater than that between diastase and the chloride ion. The new complex compound has its optimum at pH 7·73. The glycogenolysis is very intensive, and even at pH 7·33 is just as heavy as the Cl-diastase at pH 6·8.

(3) By the lack of re-formation of glycogen, such as very probably takes place in pancreatic diabetes, to which diabetes mellitus is due.

Langfeldt's results seemed to indicate a line of investigation that would lead to an explanation of the abnormal blood-sugar curves found in mental disorders. We are concerned with a sustained

hyperglycæmia, which, in the light of the facts already mentioned, may be due to (1) inhibition of glycogenesis arising from endocrine hyperactivity, (2) excessive diastase activity due to the same cause, or shift of the pH of the liver, and lastly (3) to pancreatic dysfunction.

The shift of the optimum for liver diastase to the alkaline side, (pH 7.73) under the influence of thyroxin and adrenalin, gave promise of a method whereby one might possibly determine the presence of thyroid reacting bodies in the serum, by testing its activating properties on the glycolytic action of liver diastase in the presence of dilute adrenalin solution at a pH of 7.73. Or, by testing the activating properties of various sera on the glycolytic power of liver diastase at selected hydrogen ion concentrations, it might be possible to detect the activating influence of thyroid-adrenalin reacting bodies. Attempts were made in this direction, but without success, owing (1) to the fact that it was impossible to destroy the more active diastatic action of the serum which masked all other reaction, and (2) to the fact that serum inhibits adrenalin action (Stewart) (102).

It was considered advisable, however, to examine the diastatic power of the blood in a number of cases, and to investigate whether any variation in diastatic activity could be discerned as the result of endocrine administration. It may be stated at once that the results throughout were of a negative character, and will receive but brief mention.

Investigation of the diastatic action of the blood.—The determination of the blood diastatic power has been made by digesting starch solution with 0.2 c.c. of blood at 37° C., and estimating the sugar production after 20, 40 and 60 minutes. Glycogen has also been used as substrate and the reaction estimated by sugar determinations, or by colorimetric estimation of the glycogen remaining at varying periods up to 20 hours. There is a fallacy regarding the estimation of the end-product as an index of the reaction in that intermediate products may occur, and attempts were made, though unsuccessful, to adopt the more satisfactory method and estimate the diminution of substrate by nephelometric methods.

The activity of diastase varies with the pH of the medium in which it acts, and this optimum is different according to the salt content of the medium (Michaelis and Pechstein (77) and Norris (78)). The optimum in the presence of phosphates is at pH 6.2, and in the presence of chlorides pH 6.7.

To avoid errors due to a varying medium the substrates used were buffered with Sorensen's solutions to pH 6.2. The actual substrate used was equal parts of 0.4 *per cent.* soluble starch solution and Sorensen's phosphate buffer solution of pH 6.2. Four 0.2 c.c.

specimens of blood were taken from the subject from a finger-prick, and each added to 1.8 c.c. of the starch substrate. The sugar content of one specimen was determined at once, and the remaining specimens heated in a water-bath at 37° C., and sugar estimations made after 20, 40 and 60 minutes. A series of 12 normals and 12 patients suffering with varying types of mental disorder were examined. The results were by no means constant, variations occurring with the same case on different days, and the range of this inconstancy was the same for both normals and patients. As far as could be judged there was no increased glycogen or starch-splitting power as a response to adrenalin ($\frac{1}{8}$ c.c. 1-1000) injection, to thyroid feeding and injection, or as a result of vigorous exercise. The same type of results was obtained repeating the tests but using glycogen solution buffered to pH 6.2 as substrate, and estimating the reaction by the disappearance of substrate, *i.e.*, glycogen by colorimetric determination. The one case that gave results well out of the range of the variations in the normal and other subjects was a diabetic included in the series of patients.

A further experiment was made to test the activity of blood diastase before and after prolonged thyroid feeding. In this instance the tests were made with a substrate of glycogen solution buffered to a range of hydrogen concentrations from 6.2 to 8.04, and the reaction estimated both by sugar determinations at varying periods and by colorimetric estimations to ascertain the rate of disappearance of the substrate. Again the results were inconstant, but generally they did not indicate an increased diastatic activity as the result of thyroid therapy.

These experiments well demonstrated the known fact of the marked variation of the activity of diastase with ionic change of the medium. Owing to this and other reasons related to changes that may occur within the blood itself, the available methods for the determination of the starch and glycogen-splitting properties of blood attributed to diastase can only be regarded with suspicion, and the general conclusion that the amount of diastase in the blood does not suffer variation under the conditions of the experiments requires further support than that of the results of diastase tests at our disposal. It may be mentioned, however, that the tests were made on exactly comparable lines, and the general conclusions receive support from the work of MacLeod (79).

Sympathetic and parasympathetic glycaemia.—In view of the close association of the autonomic nervous system with carbohydrate metabolism and blood-sugar regulation, it was deemed of interest to investigate the comparative response of a series of mental cases and normal controls to the subcutaneous injection of

sympathetico-mimetic and parasympathetico-mimetic drugs, adrenalin and pilocarpine, by variations in fasting blood-sugar values, and blood-sugar curves after glucose ingestion.

Variation in fasting blood-sugar levels following pilocarpine injection, $\frac{1}{10}$ gr.—Altogether 16 cases, 3 normals and 13 patients, were examined, blood-sugar determinations being made at varying intervals for one to two hours after pilocarpine subcutaneous injection. The results were negative in every case; no variation in the blood-sugar levels could be observed.

Variation in fasting blood-sugar levels following adrenalin injection.—In 5 normal cases examined there was no blood-sugar rise following the injection of 2 minims (1-1000) adrenalin solution. Following the subcutaneous injection of 5 minims (1-1000) adrenalin solution all cases examined showed a variable blood-sugar rise. Sixteen patients and 5 normal controls were investigated; the maximum blood-sugar values ranged up to 0.15 *per cent.*, and the same variations occurred in the normals as in the patients examined. Nothing could be ascertained regarding the respective blood-sugar response to adrenalin in various types of mental disorder, and it is evident that any attempt to estimate individual sensitiveness to adrenalin stimulation as indicated by the blood-sugar response must be made by determining the dosage necessary to produce a given response rather than the effect produced by a given dosage.

Comparison of variations in fasting blood-sugar levels following adrenalin stimulation, preceded by pilocarpine injection.—Eleven patients (8 females and 3 males) and 1 normal were investigated for the blood-sugar response to the subcutaneous injection of 5 minims of adrenalin solution. On another day the blood-sugar response was ascertained for the same adrenalin dosage one hour after the subcutaneous injection of $\frac{1}{10}$ gr. pilocarpine.

The normal showed a slight depression of the adrenalin effect following pilocarpine as judged by blood-sugar rise; all the mental cases gave a similar reaction with the exception of two, and in these the slightly increased adrenalin effect could not be associated with any feature of the cases.

The influence of sympathetico-mimetic and parasympathetico-mimetic drugs on the blood-sugar curve.—A series of tests have been made to investigate the variations in the blood-sugar curve following glucose ingestion, with the subcutaneous injection of adrenalin, with pilocarpine $\frac{1}{10}$ gr., and with atropine $\frac{1}{100}$ gr.

The adrenalin effect is shown by a sharp rise in the blood-sugar curve; the return to the original level may occur in normal time or the hyperglycæmia may be sustained. The pilocarpine reaction may be in the form of a depression of the blood-sugar curve, or the

blood-sugar curve may be depressed at first, but followed by a marked rise. The action of atropine is to reduce the levels of the blood-sugar curve.

It is again necessary to emphasize that the action of sympathetico- and parasympathetico-mimetic drugs depends on respective dosage; reference to the work of Bertram (80) shows a hyperglycæmia in response to adequate pilocarpine dosage; also simultaneous injection of pilocarpine with adrenalin abolishes the adrenalin hyperglycæmia. Also the work of Schenk and Heimann-Trosien (81) in the case of adrenalin would appear to indicate that the response may be merely an expression of the rate of absorption.

THE INFLUENCE OF ACID AND ALKALI ON CARBOHYDRATE METABOLISM.

In view of the well-known influence of hydrogen ion concentration on enzyme action in general, it is not surprising that the administration of acid and alkali will markedly alter both glycogenolytic and glycogenetic processes. The effect of acids on the metabolism of carbohydrates was investigated by Elias (82), (83), (84) and his co-workers. They observed that small amounts of acid by mouth (rabbits and dogs), as well as by transfusion of the liver (turtles), caused glycogenolysis, with subsequent hyperglycæmia and glycosuria.

The work of Haldane (85) on experimental and therapeutic alterations of human tissue alkalinity is of considerable interest in this direction. Sodium bicarbonate in massive doses is rapidly excreted, but it is possible to increase the blood alkali reserve by 20 *per cent.*, and the alveolar CO_2 rises in about the same proportion owing to slowing of respiration. The reaction of the arterial blood is little altered, although doubtless the liver becomes very alkaline. Alkalosis, whether due to over-breathing or alkali ingestion, causes a disturbance of carbohydrate metabolism like that of diabetes. Aceto-acetic acid and β oxybutyric acids appear in the urine. The respiratory quotient falls to 0.70 and lower. The fasting blood level rises slightly, but polarimetric examination by the method of Winter and Smith (p. 468) shows that, as in diabetes, the normal sugar has been replaced by a highly dextro-rotatory substance. Five hours after 60 gm. of NaHCO_3 a normal glucose tolerance of 200 gm. is reduced, and 100 gm. gave a blood-sugar curve rising to 0.19 *per cent.* with sustained hyperglycæmia without abolishing the acetoneuria.

Haldane, from his results, points out that it may be inadvisable to push alkali treatment too far, and quotes Aldersberg (86), who induced acidosis in mild diabetics by daily doses of 18 gm. $\text{NH}_4\text{H}_2\text{PO}_4$, and was able thereby to halve the acetone excretion and in some cases the glucose excretion also. His results may be due to increase in blood phosphates, but the probability remains that glucose is best oxidized on the acid side of the normal reaction. When, however, the acidosis is pressed too far a different type of carbohydrate metabolism occurs. The respiratory quotient is normal or high, indicating oxidation of carbohydrates. The rotating power

of blood-sugar and the fasting level are normal. One hundred grm. of glucose produce a blood-sugar rise to 0.19 *per cent.* with glycosuria. There is a failure to store glucose, but not to oxidize it.

Results on the influence of acid and alkali, introduced by intravenous injection, on the blood-sugar curve following glucose ingestion in animals are recorded by Bertram (87); in his experiments acid produces a sharp rise in the curve with a tendency to hyperglycæmia, whereas alkali causes no apparent rise but a slight sustained hyperglycæmia; there is an increase in adrenalin hyperglycæmia when acid is injected simultaneously.

From the results I have obtained it is evident that the effect of acid and alkali *per os* on the blood-sugar curve depends on dosage, the type of acid and alkali administered, and the time in relation to the sugar meal when they are administered. The question has some importance from a therapeutic point of view, and the results will be reported in a later communication. There is, however, a marked variation in carbohydrate metabolism as the result of acid and alkali ingestion.

While considering the influence of ionic change, it is of interest to note that Underhill and Closson (88) induced a hypoglycæmia with glycosuria and diuresis following intravenous injection of sodium chloride, and this reaction could be counteracted by subsequent injection of saline solutions containing calcium chloride.

THE GLYCOGENIC FUNCTION OF THE LIVER.

In a number of cases in which the blood-sugar curve is recorded, the lævulose test for liver glycogenic efficiency was also made. The results of the latter investigation are reported in detail (p. 474), and here it is only necessary to note that the results *were negative in 21 cases*, two cases only giving results of a positive character. Twenty-three cases were thus examined, 9 of which gave normal curves, and 12 abnormal blood-sugar curves showing sustained hyperglycæmia after glucose ingestion. The 2 cases positive to the lævulose test gave normal glucose curves.

The cases examined were: *With normal blood-sugar curve, males*, 3 cases; *females*, 8 cases.⁽¹⁾

With blood-sugar curves showing sustained hyperglycæmia: Low level, male, 1 case; *female*, 1 case. *Normal level, male* 1 case; *females*, 3 cases. *High level, females*, 7 cases.

The results indicate that if the lævulose test gives a true indication of the glycogenic function of the liver, there is no impairment of function in mental cases giving all types of blood-sugar curves, normal and abnormal, after glucose ingestion.

⁽¹⁾ Lævulose test, positive (?), 2 cases.

ABSORPTION.

The work of Hewitt (89), (90), (91) and his collaborators on the permeability of the living intestines to various carbohydrates led to the discovery that after contact with the intestinal mucosa optical changes indicated the partial conversion of the stable α and β isomerides of glucose, fructose and galactose into the highly reactive γ modifications. Further work on the relative rates of absorption of δ glucose, δ fructose and δ galactose, from the small intestine, showed that with the normal intestinal wall the absorption rate is in the order glucose, galactose and lævulose; with the epithelial lining destroyed absorption still occurs, but at an equal rate for all three sugars. Attention is also drawn to the influence of calcium and sodium salts on the permeability of cells to these crystalloids.

Concerning the nature of sugar in blood, Winter and Smith (92) have deduced from polarimetric investigation that the sugar in normal blood is the highly reactive γ glucose, while in cases of severe diabetes the blood-sugar is in the stable α and β form.

Winter and Smith (93) have published further work confirming these results and findings on the blood-sugar in diabetics treated with insulin, from which they surmise that insulin induces a greater proportion of the normal γ form. In another communication (94) they have investigated the blood-sugar in adrenalin hyperglycæmia, in which condition the blood-sugar appears to be the same as in the diabetic.

The findings of Hewitt and his co-workers have not received confirmation by the work of Stiven and Reid (95) and Hume and Denis (96). The latter investigators could not agree with the negative results of Stiven and Reid, as, although half their experiments gave negative results, the others gave unmistakable evidence of the existence of a muta-rotation, which, however, they could not ascribe to the transitory formation of γ glucose.

Visscher (97), repeating the work of Winter and Smith, was able to corroborate their observations concerning normal blood, but found that the differences between normal and diabetic blood could be obtained by variation of the pH of the deproteinized blood extract. Denis and Hume (98) could not confirm this statement by Visscher, and also from their results deemed it unjustifiable to consider that the experiments of Winter and Smith furnished proof of the existence of γ glucose in normal blood.

The varied opinions render the evidence concerning the existence of γ glucose unconvincing, but it would seem possible that the sugar that is absorbed and stored in the organism is not the usual α and β

glucose, but a reactive modification, which, in view of the different behaviour of the monosaccharides, is more readily formed from lævulose.

Hewitt has found that under experimental conditions glucose is absorbed from the gut more rapidly than lævulose, but in practice it is found that absorption may vary considerably in different individuals. In the consideration of the blood-sugar curve following glucose ingestion this does not appear to be a factor of any great importance, because the amount of glucose necessary to be absorbed to cause the onset of the storage reaction is small. Moreover, examination of the blood-sugar curves obtained in this series of cases does not indicate that variations in the absorption rate introduce any abnormality of note.

DISCUSSION AND SUMMARY.

The general finding expressed here, that in a large proportion of early and chronic mental cases there is a disordered carbohydrate metabolism as shown by a sustained hyperglycæmia following glucose ingestion, is agreed with by all investigators who have studied the subject. Also this abnormality cannot be associated in particular with any mental condition, but it is generally accepted that its frequency is greater in those associated with melancholia and especially stupor. Various explanations for the abnormal sugar curve have been suggested. Tsuchaya (103) assumes that the hyperglycæmia results from a diminished capacity in the body to burn sugar. It is possible that there may be diminished oxidation in some cases, but all the evidence tends to show that the loss by combustion is a minor factor in the fall of the sugar curve. Schryver (104) offers possible reasons for the abnormality; no definite physical causes are evident, nor emotional states; some suggest onset of diabetes, but probably there is no single reason for several abnormalities, such as those of the thyroid, suprarenal and pituitary glands, and he suggests that liver function would be worthy of investigation. My results from the investigation of the hepatic glycogenic function tend to absolve the liver from blame in this direction. Both authors suggest thyroid, suprarenal and pituitary abnormalities, and Olmsted and Gay (58) point to the similarity of the manic-depressive blood-sugar curves with those of hyperthyroidism. The curves in both conditions are very diverse in character, and the comparison is difficult. I have examined a large number of blood-sugar curves from cases of mental disorder, and, with the exception of those in which the condition is accompanied by obvious endocrine disease, I am unable to classify them in terms of specific endocrine activity, and I

consider there is a tendency to exaggerate the importance of these glands in seeking for an explanation for the disordered sugar metabolism.

I have endeavoured to consider all the possible factors concerned with the rise and fall of the blood-sugar curve, absorption and glycogenolysis associated with the rise, and glycogenesis, combustion and excretion with the fall.

The results of the liver function tests appear to indicate that the glycogenic function in these cases is not impaired. Lævulose is a good glycogen former, and its glycogen formation takes place mainly in the liver (p. 476). Moreover, apparently this formation can take place independently of pancreatic aid, for lævulose can cause glycogen formation in the livers of depancreatized dogs (de Wesselow (99)). On the other hand, the pancreas is essential for glycogenesis following glucose ingestion. It would appear, then, that in the cases showing sustained hyperglycæmia there is no hepatic inefficiency, and the cause of the hyperglycæmia may be defective pancreatic reaction.

Regarding the question from the point of nervous control, it may be concluded that in the entire absence of adrenalin from the blood it is impossible to excite hyperglycogenolysis by stimulation of the nerve supply to the liver (*piqûre*, splanchnic stimulation, hepatic nerve stimulation) (MacLeod (79)). It is probable that both thyroxin and adrenalin are able to increase glycogenolysis and to inhibit glycogen formation; this is not evident in these cases following lævulose ingestion. Moreover, experimental adrenalin hyperglycæmias following reasonable dosage are not of great magnitude, and emotional hyperglycæmias of the same mechanism still less, and it would seem that this factor does not contribute much to the sustained hyperglycæmia following glucose ingestion in the majority of the cases examined. The adrenalin effect is probably seen more on the lowering of the renal threshold and glycosuria, owing to increased permeability of the tissues; for the explanation of such changes I would refer to the illuminating lectures by Hamburger (100) on the increasing significance of permeability problems for the biological and medical sciences. It is noteworthy that the sustained hyperglycæmia curves tend to show high and late maximum values, and, with a 50-grm. glucose meal, although the maximum values often exceed the accepted renal threshold for glucose, glycosuria is infrequent.

Viewed from the point of view of hormone control, we have to consider two independent vital processes—glycogenolysis and glycogenesis. With both reactions of enzyme-like character there is no evidence to indicate deficiency of the hormones concerned,

but there is every indication of the extreme sensitiveness of these reactions to change in ionic state of the environment in which they operate. I would refer to the marked effect on their action of changes in the hydrogen ion concentration and salt content, and the disturbance in carbohydrate metabolism from the same causes in animal experiments, etc. Unlike the diabetic, the fasting levels in cases showing markedly sustained hyperglycæmia are generally normal, high values in mental conditions being associated with motor restlessness. The reaction governing the storage mechanism is merely delayed. The pancreas is concerned with glycogenesis represented by the fall of the blood-sugar curve, and in the light of the preceding remarks, it seems reasonable to infer that the cause of the sustained hyperglycæmia in the majority of mental cases showing a defective storage mechanism may be depression of pancreatic function, probably induced by change in the ionic state of the organism. The cases examined in this investigation are early recoverable uncertified cases of mental disorder; but the investigations of Lovell (101) would indicate that this functional inactivity may eventually lead to permanent damage of the pancreas. The blood-sugar curves in infective conditions and following the injection of toxins are very significant, and suggest the possibility of a toxæmic cause for the altered metabolism in these cases, especially intestinal toxæmias.

It may be asked, What is the practical significance of blood-sugar curves in connection with mental disorders? It is possible that they may be just one expression of a general causative disordered metabolism; the association of fat and carbohydrate metabolism has been mentioned, and it is probable that with appropriate investigations further important metabolic defects may be discovered. There is no definite association with prognosis in mental condition; progressively deteriorating cases may give normal or abnormal curves, but in certain types of acute psychoses with markedly abnormal blood-sugar curves there may be a return to the normal type of curve coincident with recovery. Also the blood-sugar curve may be taken as a guide to the efficiency of treatment, especially with regard to gland therapy, and the question of acid and alkali treatment by drugs or diet under the same guidance may be worthy of consideration. The feature of the blood-sugar curve in the normal is its constancy, and treatment that brings the abnormal curve nearer to normal limits may be associated with clinical improvement.

In conclusion, I would express my indebtedness to Dr. Golla for his unfailing interest, to Dr. Mapother and the medical officers of the Maudsley Hospital for access to their cases and for their helpful

encouragement, and to the volunteers who provided me with normal control experiments from time to time.

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The Investigation of a Series of Cases of Early Mental Disorder by the Lævulose Test for Liver Glycogenic Efficiency. By S. A. MANN, B.Sc.Lond., F.I.C. (From the Pathological Laboratory of the London County Mental Hospitals, Maudsley Hospital.)

IN the preceding communication the results are given of the investigation of a series of cases of early mental disorder for defects in carbohydrate metabolism by the study of blood-sugar curves, following glucose ingestion. The investigation revealed the occurrence of an abnormally sustained hyperglycæmia in a large proportion of these cases; the results are interpreted as a defect of the carbohydrate storage mechanism. As the liver is largely concerned with glycogenesis, it appeared that the lævulose test applied to these cases might afford some explanation of the abnormal findings.

The lævulose test owes its origin to the work of Sachs (1) (1899), who investigated the tolerance of dehepatized frogs to various sugars; while demonstrating that other organs and tissues besides the liver can store glycogen, he also showed that lævulose was the only sugar not converted and stored as glycogen after ablation of the liver. This result has received confirmation from the work of Mann and Magath (2), who found that the symptoms of hypoglycæmia, following ablation of the liver in dogs, could be relieved and the animal restored temporarily to normal health by the intravenous injection of glucose, while lævulose had no such effect.

With the experiments of Sachs as a basis, Strauss (3) formulated a test for liver efficiency depending on the administration of a lævulose meal (100 grm.) to the fasting patient with subsequent examination of the urine for lævulose. He claimed that, following lævulose ingestion, the carbohydrate appeared in the urine of cases with hepatic disease, while lævulosuria was of rare occurrence in normal individuals.

Further work, however (Churchman (4), and Worner and Reiss (5)), showed that lævulosuria was by no means rare in normal cases, and that even when an appreciable amount of lævulose was found in the urine the results needed cautious interpretation. Moreover, the occurrence of lævulose in the urine of normal individuals after ingestion of lævulose has been explained by the work of Tallermann (6), who showed that the renal threshold for this carbohydrate is extremely low (about 0.02 *per cent.*). Small amounts passing into the blood may cause lævulosuria even in health, and the lævulose test for the glycogenic function of the liver based on urinary examination has therefore little value.

In 1913, however, Schirokaner (7) showed that the ingestion of lævulose caused no appreciable rise in the blood-sugar of normal persons, whereas in cases of hepatic disease a marked rise was found (up to 0.19 *per cent.*). With simplification and improvement

of the technique for blood-sugar determination these observations were confirmed by Bergmark (8) with regard to the slight rise in blood-sugar following lævulose ingestion, and by Maclean and de Wesselow (9), and Spence and Brett (10), in relation to the lævulose blood-sugar curve in normal and pathological cases. Isaac (11) adds further confirmation to the finding that the blood-sugar is not appreciably raised following a lævulose meal in the normal individual, and also records polarimetric analyses of the blood-sugar taken at intervals after the meal in both normal and hepatic cases. In the normal he found that dextrose formed the greater part of the sugar-content and that lævulose soon disappeared entirely, whereas in cases of hepatic disease the sugar-content was increased and the proportion of lævulose greater and more persistent. In the light of recent work, however, the blood-sugar rise following lævulose ingestion in the normal individual shows considerable variation and will be considered later.

In this investigation the results of the lævulose test are recorded on—

- (1) 18 normal individuals.
- (2) 55 patients admitted to the Maudsley Hospital (*vide* p. 446).
- (3) 19 certified patients resident in Horton Mental Hospital.

On a number of these cases blood-sugar curves following glucose meals have also been determined and will be recorded.

TECHNIQUE.

All the tests were made in the morning on fasting individuals. On the basis of Spence and Brett's dosage they received 40 grm. of chemically pure lævulose (B.D.H.) in 8 oz. of water, except in the case of children, when appropriate dosage was administered, and blood-sugar determinations were made at intervals up to 2 hours following the lævulose ingestion. Except in a few instances the patients were up, but were kept resting during the test.

The colorimetric method of Calvert has been used throughout for blood-sugar determination (*vide* p. 444).

In view of some of the findings to be presented subsequently, and bearing in mind recent work by other investigators, it becomes necessary to decide as definitely as possible what constitutes a negative and what a positive reaction, before any classification of results can be made.

Tallermann concludes from his work "that normal variations appear to be rather greater than has hitherto been stated. A blood-sugar value of 0.12 to 0.13 *per cent.* after a dose of lævulose is not in itself evidence of a pathological condition. If, however, the height of the curve exceeds 0.135 *per cent.* and the actual rise in value from the original level exceeds 30 mgrm. a degree of liver inadequacy is

presumed. The prolongation of the curve, a high blood-sugar value persisting at the end of $1\frac{1}{2}$ hours to 2 hours, is strong evidence of such disorder." Finkelstein and Dannenburg (12), in a series of tests on 38 cases, and basing their results on the hypothesis that the normal blood-sugar rise following lævulose ingestion is inappreciable, conclude that "if we assume that the abnormal blood-sugar curves observed are indicative of altered liver function, it would appear that such alteration occurs in some cases in which we have, as a rule, not suspected hepatic damage." De Wesselow (13) sums up that a hyperglycæmia in excess of 0.13 *per cent.* persisting for more than two hours after the administration of lævulose may be regarded as definite evidence of hepatic damage.

None of these definitions is satisfactory, and in my opinion they are liable to lead to erroneous interpretation of the results. I am in entire agreement with Tallermann, that normal variations appear to be rather greater than has hitherto been stated, and, as both his and my results on normals will show, the blood-sugar rise following lævulose ingestion in the normal may be quite appreciable.

From the work of Sachs (1), and Mann and Magath (2), already quoted, and the close correlation of the venous and arterial blood-sugar curves (Foster (14)) following lævulose ingestion, it is evident that the liver plays the main rôle in the removal of unoxidized lævulose from the blood-stream. Moreover, the fact that increased dosage may not only cause lævulosuria but also a variable hyperglycæmia in the normal individual (Spence and Brett (10)), shows that the normal immediate glycogenic function of the liver may be variable, such variations depending on conditions unassociated with hepatic disturbance. In this direction it is necessary to consider firstly the work of Hewitt (15) on the rate of absorption of sugars from the intestine. Experimenting on the isolated loop of intestine in the rabbit with glucose, galactose and lævulose, with the gut intact, he found these carbohydrates absorbed in the order given, lævulose being absorbed at the slowest rate; but, following destruction of the epithelium, absorption continued, but at an equal rate. Hewitt suggests the possibility of the influence of this slow absorption in relation to the greater tolerance of the organism for lævulose.

The question of oxidation needs mention in relation to the low blood-sugar, as Bornstein and Holm (16) report an immediate rise in the respiratory quotient following lævulose ingestion, whereas a rise is not noted until 40 minutes after glucose administration.

Secondly, the actual fasting state of the individual is of importance.

The experience of the author confirms the work of Foster that a carbohydrate meal (glucose) establishes the storage mechanism, and that, if a further meal is given, there is generally no rise of blood-sugar such as occurs with the first. Also lower curves will

be obtained for individuals who have been on a diet rich in carbohydrate, and these, as de Wesselow says, "may be regarded as the response of a glycogenic mechanism which is in good training." After a fat-protein diet, in which the storage capacity is not being exercised, a high curve may be obtained, since the mechanism is for the moment overwhelmed by the sudden demand made upon it.

For these reasons, namely, the possibility of variations in the absorption rate and of the existence of a fasting phase in which the glycogenic mechanism may be temporarily at low ebb, I would disregard as being indicative of significant liver inadequacy even high values occurring within the first hour following lævulose ingestion, provided that within 2 hours the blood-sugar level has returned to within the range of fasting levels. A positive reaction may be indicated by a rising curve, even with low levels, during a 2-hours test, or by a curve in which the fall from the maximum level is obviously delayed at the end of 2 hours. At that point probably an increase of $\cdot 02$ – $\cdot 03$ *per cent.* above the original fasting level is of significance, but with such cases as is shown in Table I, it is advisable to repeat the test to exclude the possibility of a temporary failure of adaptation being interpreted as serious impairment of liver function. This interpretation of results would remove the apparent anomalies reported in Finkelstein and Dannenberg's series of cases. In the investigation of mental disorders there is evidence that there may exist a failure of adaptation to sudden stress (Mann (17)), but its significance requires further investigation and consideration in relation to all other tests of functional capacity.

Tallermann inclines to believe dosage of little importance, but it would seem that strict adherence to dosage per body-weight is an essential factor for accurate diagnosis.

TABLE I.—*Showing Variations in Type of Blood-sugar Curve following Lævulose Meal (40 grm.) on Different Days.*

		Times after lævulose in minutes.				
		0	30	60	90	120
		Percentage blood-sugar				
1. Female.	Dementia præcox .	$\cdot 099$	$\cdot 141$	$\cdot 129$	—	$\cdot 101$
	14 days later .	$\cdot 111$	$\cdot 116$	$\cdot 116$	—	$\cdot 087$
2. Male.	Post-encephalitis .	$\cdot 103$	$\cdot 116$	$\cdot 133$	$\cdot 120$	$\cdot 120$
	7 days later .	$\cdot 100$	$\cdot 116$	$\cdot 116$	$\cdot 112$	$\cdot 100$
3. Male.	Post-encephalitis .	$\cdot 095$	$\cdot 112$	$\cdot 120$	$\cdot 128$	$\cdot 133$
	6 days later .	$\cdot 109$	$\cdot 116$	$\cdot 116$	$\cdot 109$	$\cdot 103$
4. Male.	Normal .	$\cdot 103$	$\cdot 121$	$\cdot 110$	—	$\cdot 104$
	2 days later .	$\cdot 098$	$\cdot 106$	$\cdot 098$	—	$\cdot 092$
5. Male.	Normal. At rest .	$\cdot 095$	$\cdot 113$	$\cdot 109$	—	$\cdot 088$
	Next day Working .	$\cdot 120$	$\cdot 126$	$\cdot 117$	—	$\cdot 110$

All of them are classed as negative reactions. As being representative of the results obtained, the figures of nine of these tests are noted in Table II.

INVESTIGATION OF NORMAL INDIVIDUALS.

Eighteen normal controls have been investigated. They have been derived from co-workers in the laboratory and members of the hospital nursing staff, in none of whom any impairment of liver function was suspected. None showed a rising curve for 2 hours, following lævulose, and although some showed an appreciable immediate blood-sugar rise, none failed to return to within the range of fasting levels within 2 hours.

TABLE II.—*Normals : Blood-sugar Values following Lævulose Meal (40 grm.).*

Minutes.	Cases	1	2	3	4	5	6	7	8	9
0	.	.092	.103	.103	.109	.097	.077	.106	.106	.106
30	.	.116	.138	.124	.144	.116	.124	.124	.124	.124
60	.	.106	.112	.109	.120	.109	.109	.106	.128	.100
90	.	.103	.106	.106	.100	.095	.106	.106	.095	.095
120	.	.092	.106	.103	.106	.100	.106	.103	.100	.100

Nos. 2 and 4 show rather high levels 30 minutes following the lævulose meal, but descending values follow and a return to the normal fasting level range.

INVESTIGATION OF INSANE CASES.

I am indebted to Col. Lord for permission to investigate the following 19 female cases of certified mental disorder resident in Horton Mental Hospital. A brief description of the cases is as follows :

Case.	No.	Age at 1st attack	Age on admission.	Mental disorder.	Case.	No.	Age at 1st attack.	Age on admission.	Mental disorder.
1	4902	25	25	Dementia præcox, Dull.	11	4137	26	32	Dementia præcox, hallucinated.
2	3941	18	18	Dementia præcox.	12	4955	30	30	Dementia præcox, dull, hallucinated.
3	3600	20	20	Do., dull.	13	2156	44	44	Delusional.
4	4130	26	28	Do.	14	3824	28	28	Dementia præcox, impulsive.
5	5339	17	17	Do., stupor.	15	555	25	29	Hallucinated.
6	4867	20	28	Do., dull.	16	5566	46	46	Confusional insanity (toxic).
7	3788	26	26	Do., childish.	17	5483	33	36	Confusional insanity.
8	4198	20	23	Do., dull.	18	5445	22	22	Dementia præcox, impulsive.
9	4212	25	25	Do., dull.	19	5611	32	33	Melancholia, dementia præcox (?).
10	5112	29	29	Do., resistive.					

The results obtained in these cases are shown in the following tables :

TABLE III.—*Insane Cases with Negative Results following Lævulose Ingestion: Blood-sugar Values following Lævulose Meal (40 grm.).*

Minutes.	Cases	1	2	3	4	5	13	15	16	17	18
0 . . .		·093	·093	·090	·092	·100	·098	·112	·103	·112	·112
30 . . .		·106	·106	·109	·133	·120	—	·150	·144	·124	·133
60 . . .		·116	·120	·116	·103	·120	·116	—	—	—	—
90 . . .		·100	·109	·109	·112	·112	·112	·116	·116	·109	·124
120 . . .		·100	·109	·112	·095	—	·103	·116	·085	·109	·103

TABLE IV.—*Insane Cases showing Anomalous Reactions following lævulose ingestion: Blood-sugar Values following Lævulose Meal (40 grm.).*

Minutes.	Cases	6	7	8	9	10	11	12	14	19
0 . . .		·103	·109	·103	·112	·098	·091	·093	·103	·150
30 . . .		·103	·171	·138	·124	—	—	—	—	·240
60 . . .		·120	·144	·133	·124	·120	·124	·106	·138	—
90 . . .		·116	·124	·120	·120	·106	·120	·124	·133	·106
120 . . .		·116	·116	·128	·116	·116	·116	·116	·120	·106

Of the above cases, Nos. 8 and 14 certainly show values indicating positive reactions, Nos. 7 and 19 show abnormally high values within 30 minutes of the ingestion of the meal with a falling curve, and the remainder show a tendency towards sustained high levels at the end of 2 hours. Case 19 was examined 6 months previously, at the Maudsley Hospital, before she was certified, the result then obtained being:

Fasting level . . . ·138 *per cent.* blood-sugar
40 grm. lævulose.

, 30 minutes after, ·155 *per cent.* blood-sugar.

60 " " ·167 " "

120 " " ·126 " "

With the exception of Cases 8 and 14, none of these results can be classified as positive reactions, and in view of the variability of results that may be found in the same case on different days (*vide* Table I), all of the cases would require further investigation regarding the persistence of such results before their significance with regard to any impairment of glycogenic liver function can be definitely gauged. But the fact is evident that these insane cases compared with the normals and the Maudsley Hospital cases show a much greater frequency of anomalous reactions. There does not appear to be any association of these results with any particular mental state.

INVESTIGATION OF EARLY CASES OF MENTAL DISORDER (MAUDSLEY HOSPITAL).

The cases of early mental disorder admitted to the Maudsley Hospital gave the following results:

Altogether 55 cases have been examined—12 males, 32 females, and 11 children (girls).

TABLE V.—*Diagnosis.*

	Males.	Females.		Males.	Females.
Dementia præcox . . .	6	4	Exhaustion state (con-		
Anxiety neurosis . . .	1	7	fusion) . . .	—	1
Melancholia . . .	—	5	General paralysis . . .	1	—
Hysteria . . .	1	4	Korsakow's syndrome . . .	1	—
Paraphrenia . . .	—	4	Neurasthenia and alco-		
Post-encephalitic syn-			holism . . .	1	—
drome . . .	—	6	Manic depressive . . .	1	2
Chorea . . .	—	7	Neurasthenia . . .	—	1

The results may be summarized: Negative result, 12 males, 30 females, 11 children; reactions of a positive character, 2 females.

Details of the negative cases are given in Table V. It will be noted that they include all types of neuroses and psychoses; some have improved since discharge from the hospital, and others have remained *in statu quo* or have found their way to institutions for certified patients. In none of these cases was there clinical evidence of hepatic disorder. The children were cases of chorea or post-encephalitis lethargica. The ages of the whole series vary from 5 to 59 years. In the case of the adults the lævulose meal was 40 grm. throughout, but with the children appropriate dosage per body-weight was given on the basis (Spence and Brett (10))—

50 grm. lævulose per 80 kilos. body-weight.

40 " " " 60 " "

30 " " " 40 " "

Cases Giving Reactions of a Positive Character. Females, 2.

(1) Female, æt. 33 years; at first attack, 25; melancholia, Graves's disease and tuberculosis.

Fasting level . . .	• 111 per cent. blood-sugar	} Blood-sugar curve after glucose: normal.
40 grm. lævulose		
30 minutes after, . . .	• 112 per cent. blood-sugar	
60 " " " " "	• 118 " " "	
120 " " " " "	• 125 " " "	

(2) Female, æt. 40 years; first attack, post-encephalitic syndrome.

Fasting level . . .	• 103 per cent. blood-sugar	} Blood-sugar curve after glucose: normal.
40 grm. lævulose		
30 minutes after, . . .	• 124 per cent. blood-sugar	
60 " " " " "	• 117 " " "	
120 " " " " "	• 125 " " "	

In none of the 55 cases examined was there any clinical evidence of hepatic disease.

A series of similar investigations are recorded by Scharpff (18). Using the micro-method of Bang for blood-sugar determinations, he has investigated the blood-sugar curve following lævulose ingestion in normals and "vaso-neurotics." He estimates the reaction by a

"glycæmic index" which is the *maximum blood-sugar level attained* divided by the fasting level. The normal glycæmic index ranges up to 1.3, while that of the "vaso-neurotics" is above that figure. The fasting levels given are rather on the low side, but otherwise some of the curves included in the latter group look to be normal. The results reported in this communication do not support Scharpff's findings. I have already pointed out that an initial blood-sugar rise following lævulose ingestion may arise from conditions unassociated with hepatic disturbance; moreover, applying the "glycæmic index" method of estimating the reaction to lævulose, I can find no great difference between the normals and certified and other cases examined in this series.

In 23 cases of early mental disorder (Maudsley Hospital), giving 21 negative and 2 positive results to the lævulose test, the blood-sugar curve following lævulose ingestion was also determined (p. 467). The 2 positive (?) cases by the lævulose test gave normal glucose blood-sugar curves; of the remaining 21 cases with negative lævulose reactions, 9 gave normal glucose blood-sugar curves, and 12 abnormal curves showing sustained hyperglycæmia.

SUMMARY.

Eighteen normal individuals, 19 certified insane patients and 55 uncertified cases of mental disorder have been investigated by the lævulose test for liver glycogenic function.

It is shown that variations in the normal individual are greater than previously reported. A rise of blood-sugar following lævulose ingestion may occur in the normal, and it is urged that the reaction should be judged more on the occurrence of sustained hyperglycæmia at the end of two hours rather than on the maximum blood-sugar level attained during the test.

The test was negative in the 18 normal individuals, and only two possibly positive reactions occurred with the 55 cases of early mental disorder. The 19 certified insane patients showed anomalous reactions (not necessarily positive) in 9 instances. None of the cases examined showed clinical evidence of hepatic disturbance.

There is no relation between the blood-sugar curve following glucose ingestion and the lævulose test. The two cases giving possibly positive lævulose tests gave normal glucose blood-sugar curves, and 12 cases showing abnormal curves—sustained hyperglycæmia—after glucose showed negative findings after lævulose ingestion.

In conclusion, I would express my indebtedness to Dr. Golla for his unfailing interest, to Dr. Mapother and the medical officers of the Maudsley Hospital for access to their cases and for their

helpful encouragement, to Col. J. R. Lord, C.B.E., and his medical officers for facilities to examine cases at Horton Mental Hospital, and to the volunteers who provided me with normal controls from time to time.

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Clinical Notes and Cases.

Clinical Notes on the Hæmoclastic Crisis in Early Mental Cases at the Maudsley Hospital. By A. A. W. PETRIE, M.D., M.R.C.P.Lond., Deputy Medical Superintendent, Maudsley Hospital, Denmark Hill, S.E. 5.

THESE notes are a commentary on the clinical findings seen in 275 cases investigated by Dr. I. Robertson, and should be read in conjunction with her paper.

The endeavour to find a correlation between this test and the clinical condition of the patients proved very difficult in regard to the cases at this hospital. To the usual difficulties in regard to

varying physical conditions was added the factor of uncertain diagnosis. It is often most difficult and at times impossible to diagnose with certainty early cases of psychoses and neuroses, and to divide them clearly into definite clinical categories. It is particularly difficult in the cases of adolescent psychoses and in the cases where neuroses shade into psychoses, or in which a psychosis becomes superadded to a neurosis.

It is obviously in the early stage that a laboratory test is of value in assisting clinical diagnosis, as later, at its best, it merely confirms the obvious.

A considerable number of the 275 cases investigated were gone through in regard to such points as diagnosis, prognosis, history, mental state and psycho-motor activity, also any obvious physical lesion.

For reasons stated in Dr. Robertson's paper, counting 34 indeterminate results as positive, the proportion of positives to negatives obtained in the whole series was 3 : 2. The cases dealt with included examples of most of the various types of the psychoses and all the main types of neuroses. In two groups, namely the cases of dementia præcox and those showing anxiety neurosis, there was an evident disturbance of this proportion, both these conditions providing a high proportion of positives.

The cases of dementia præcox were divided into 3 groups, namely, those whose diagnosis was certain, those in which it was probable and those in which it was doubtful. Of 15 cases classified as certain, 14 were positive and 1 indeterminate; of 10 probable, 8 were positive, 1 indeterminate and 1 negative; and of 12 doubtful, 5 were positive, 1 indeterminate and 6 negative.

The proportion of positives among the certain and probable cases is about 90 *per cent.*, which corresponds to the figures obtained in mental hospitals. The proportion 30 : 7 remains high, even when doubtful cases are included.

This high proportion of positives among the cases of dementia præcox affects the figures in regard to prognosis, accounting for the unfavourable prognosis shown by the positive psychotic cases.

The other group in which marked results were seen was that of anxiety neurosis. Of 29 cases, 20 were positive, 2 indeterminate, 7 negative—again a proportion of 76 *per cent.* positives and indeterminates.

Associated with this was the fact that of 11 cases of enlarged thyroid, 8 were positive, 1 indeterminate and 2 were negative. The fact that the administration of thyroid reverses the test is of interest, and probably related to the findings of this group.

An attempt to find whether the anxiety type of melancholia

provided similar figures did not yield conclusive results, 4 being positive or indeterminate and 4 negative.

The manic-depressive group yielded no conclusive results. The group in which both a manic and depressive phase had been observed showed 6 positives, 1 indeterminate and 2 negatives—a preponderance on the positive side. The cases of mania were too few to express an opinion on, and the melancholias showed a little over 50 *per cent.* positives. Any differentiation within this group of cases evidently depends upon other factors than their mental condition; change from manic to depressive phase did not affect the result of the test. The cases investigated were of recent onset, though some had a recurrent history. The proportion of positives among the recurrent cases showed little difference from the proportion noted among the other cases. The proportion of positives in these early cases is notably less than those collected at the mental hospitals.

In two other groups a marked preponderance of positive cases occurred. Thirteen out of 15 cases of the after-effects of encephalitis lethargica gave a positive reaction and this agrees with the work of others. Many of these cases exhibited the Parkinsonian syndrome. On the other hand, one of the negatives exhibited this rigidity to a marked degree, but there is little doubt that the great tendency of this group is to be positive.

The epileptics were few in number, but accorded with the results from the mental hospitals in all giving a positive reaction.

All the other results were either indefinite, or the number of cases were too few in which to base an opinion.

Cases of general paralysis showed some positives, but many negatives. Marked delusional cases tended to be positive. The neuroses apart from the anxiety state were mainly negative, and cases of arterio-sclerosis tended to have a positive reaction.

Other factors.—The age and length of history yielded no conclusive results. The length of the history was divided into three groups: *Short* (up to 3 months), *medium* (up to 15 months), and *long* (beyond 15 months). The cases with a short history gave a somewhat smaller proportion of positive results and those with a long history a somewhat greater proportion, but the results were quite inconclusive.

The mental state was classified into marked, moderate and mild psychotic cases and neurotic cases. The marked psychoses showed a predominating positive reaction; 33 positives, 5 indeterminates and 8 negatives. This was influenced by the numbers of positive dementia præcox, but also was affected by the more marked manic-depressive cases. The neuroses, apart from the anxiety states, showed 90 *per cent.* negatives. Psychomotor activity was also

investigated, cases being divided into marked over-activity, moderate over-activity, normal cases, diminished activity, markedly diminished activity and stupor. These results were not conclusive, but markedly over-active (agitated and restless) cases gave a higher proportion of positive reactions. The 9 cases of stupor were equally divided, and showed 4 positive reactions, 1 indeterminate and 4 negatives. The negative stupors proved to be melancholic in type and not those associated with dementia præcox.

Prognosis.—Generally the cases with a positive reaction showed a tendency to a bad prognosis, and conversely, cases with a negative reaction showed a good prognosis. In a preliminary survey of the first 110 cases, in 50 positives, 35 cases, or 70 *per cent.*, became worse, 14 *per cent.* remained unchanged, and only 16 *per cent.* were markedly improved or recovered. Among 50 negatives, 45, or 90 *per cent.*, remained better. Fuller results suggest that these figures require modification. It is essential to realize what forms of psychoses or neuroses compose these figures, and a very clear standard of differentiation in regard to the degree of improvement or otherwise is necessary. This particularly applies to the neuroses, in which only the severe forms or an exacerbation incapacitate the patient. In such cases it is easy to record a slight improvement in nearly all cases.

A large number of the total cases were classified at a later stage of the investigation into 5 groups: those showing marked improvement or recovery and those distinctly worse, and also into three intermediate grades. The figures at the two extremes showed a distinct disproportion. Of the 38 cases distinctly worse, 30 showed a positive reaction—a proportion of nearly 80 *per cent.* The positives in this group were mainly composed of cases of dementia præcox, but it also included some of the severer cases of manic-depressive psychosis.

In dealing with the greatly improved and recovered cases this proportion was not so marked, being 20 positives to 31 negatives. It was found on analysing these figures that 13 of the 20 positives in this group were cases of anxiety neurosis. The elimination of this well-defined group reduced the positives to 7 in number, and gave a proportion of nearly 80 *per cent.* negatives among the greatly improved or recovered.

CONCLUSIONS.

If the test is to prove of practical value to the practising psychiatrist, considerable knowledge and caution will be necessary in reading the results. The usual precautions will have to be taken to eliminate errors from the test itself and to discount the influence

of drugs and coincidental physical states. An understanding of the probabilities in mental states is also necessary. Cases following encephalitis lethargica and those of epilepsy are likely to be positive, as well as anxiety states and those associated with exophthalmic goitre. As our knowledge of the test increases other states may require special classification. Apart from these, a positive result seems to indicate a well-established case, probably of bad prognostic significance; a negative result in a case resembling dementia præcox is suggestive of a wrong diagnosis. In a number of cases at this hospital surprise at a negative result was generally followed by a subsequent favourable course. In view of the fact that epileptics are generally positive, a negative result would be an indication against the diagnosis of epilepsy in doubtful cases of hystero-epilepsy. A positive result would not, however, necessarily exclude hysteria.

Treatment of General Paralysis by Malaria.⁽¹⁾ By T. WISHART
DAVIDSON, M.B., Ch.B.Glasg., D.P.M.Manch., Senior Assistant
Medical Officer, Winwick Mental Hospital.

DURING the past two years (from November, 1922, to November, 1924) 608 acute male cases have been admitted to this hospital. Most of the patients giving a history of syphilis, or showing signs and symptoms, definite or suggestive of a late specific infection, have been subjected to the diagnostic biochemical tests. The Wassermann and Sachs-Georgi tests have been applied to the blood and cerebro-spinal fluid, and the colloidal gold test to the latter. Of the two years' admissions, 89 (14.6 *per cent.*) have been diagnosed as suffering from general paralysis. This percentage may later prove to be greater, as many patients recently admitted have not yet been subjected to the various tests.

The youngest patient (acquired infection) was æt. 27, the oldest 61. The duration of the attack before admission, as shown by change of conduct, varied from seven days to five years. As a cause of death general paralysis accounted for 44 out of 95 deaths in the two years—that is, 46.3 *per cent.*, a remarkably high figure.

In November, 1923, the malarial treatment of general paralysis was commenced. Prof. W. Yorke, of the Liverpool School of Tropical Medicine, kindly provided the mosquitoes (*Anopheles maculipennis*), infected with an Indian strain of *Plasmodium vivax*. During the year 53 cases were treated. The infection was conveyed by the mosquito in 23 cases; by inoculation in 30 (intravenous 16, intra-muscular 13, subcutaneous 1). The incubation period,

⁽¹⁾ Reprinted, by permission, from the *British Medical Journal*, March 7, 1925.

measured by the appearance of parasites in the peripheral blood and the occurrence of fever, varied according to the mode of infection, thus :

	Average.	Shortest.	Longest.
Mosquito . . .	14 days .	7 days .	20 days.
Intravenous . .	7 " .	4 " .	19 "
Intramuscular .	16 " .	10 " .	23 "
Subcutaneous .	20 " .	— .	—

In two cases the incubation period following intravenous inoculation was four days.

(a) April 14, 1924 : Inoculation of 2 c.c. of blood from donor during apyrexial period after six double-tertian rigors. Pyrexia of 102° F. on afternoon of 17th ; blood positive on April 18.

(b) May 28, 1924 : Inoculation of 2 c.c. of blood from donor after three single-tertian rigors. Pyrexia of 101° F. on night of May 31 ; blood positive on June 1.

The infected patients were allowed to have rigors ; ten was the number aimed at, but in thirty instances, owing to the poor general state of the patient, the malaria was cut short with quinine sulphate somewhat sooner. Thirty grains daily for three days were always given. Seven rigors was an average number. Spontaneous cure with disappearance of the parasites occurred in 8 of the remaining 23 cases (34·7 *per cent.*) after three to nine rigors. This percentage would probably have been greater had the malaria been allowed to run a longer course in some of the other cases.

It is generally considered that large doses of the arsenical compounds are contra-indicated in cerebro-spinal syphilis. Doses of 0·15 to 0·3 grm. novarsenobillon were given at first ; this dosage was increased, and finally 0·9 grm. was given intravenously at the height of the pyrexia. Seven cases were treated with this maximum dose and no ill-effects were observed. The parasites became scanty within two days, but quinine in the usual dosage was finally given to clear the blood.

When remission in the general paralysis occurred, it took place at any time ; in some during the period of malarial pyrexia, and in others as long as six months later.

Results of the 53 Cases treated.

1. Complete remission 7 = 13·2 *per cent.*
2. Improving both mentally and physically 9 = 16·9 "
3. Slight mental with improved physical health 17 = 32·0 "
4. No change mentally or physically 5 = 9·4 "
5. Deaths from time of treatment up to one year after, including 6 who collapsed 15 = 28·3 "

In Class 3 seven of the patients were bedridden, dull and confused, and wet and dirty in their habits; following treatment the mental condition improved slightly, but the physical change was marked. The patients put on weight, regained control of the sphincters, and were soon able to be up and about in the ward. Two patients have been in this state of partial remission for twelve months.

Relapses of the malaria have been frequent (14 up to date). Of the original 23 mosquito infections, 13 (56·5 *per cent.*) have relapsed, whereas of the 30 inoculated cases, only one (3·3 *per cent.*) has relapsed. The relapses in the mosquito-infected cases have occurred at periods varying from twenty-one days to eleven months after. The usual three-day course of quinine was given, but in a number of instances two, and even three and four, further pyrexial attacks were observed.

Wagner-Jauregg (1), Mühlens (2), Kirschbaum (3), and Grant and Silverston (4) have already pointed out the infrequency of relapse in inoculated cases of malaria. The high percentage of relapses in the mosquito-infected cases is similar to the percentage of relapses in the naturally infected cases of the late war—38 to 100 *per cent.* of relapses following courses of quinine (Yorke and Macfie (5)). It would appear that passage through the mosquito in some way produces an infection which is more difficult to cure than the inoculated disease, though the two infections would appear to be identical as regards the type and severity of the pyrexia and the blood picture. Following the hypothesis of Yorke and Macfie, the mosquito strain, whilst reacting to quinine, in many instances soon becomes resistant to the immune body; some parasites persist, though not found in the peripheral blood, there being a state of balance. Sooner or later the balance is lost by decrease or weakening of the immune body; the parasites multiply and relapse occurs, with or without a rise of temperature according to the reaction of the host. On the other hand, the inoculation strain responds to quinine, and would appear to be completely destroyed by the immune body formed. The question still remains, however, why patients infected by the mosquito relapse so frequently as compared with those inoculated under the same conditions. In these experimental cases it would appear that the mosquito strain is more resistant, rather than that there is variation in the capacity of the host to produce immune body.

Infection followed feeding by mosquitoes, or the injection of malarial blood, in all cases treated, but in two instances there was no pyrexial attack—simply the appearance of parasites in the blood. Blood infection only, without pyrexia, occurred also in a third

patient who already had had an attack of inoculated malaria. The circumstances are of interest.

CASE 1.—The patient had been treated with malaria in a general hospital four months previous to admission to the mental hospital. He had had eight to ten rigors, followed by spontaneous cure, but parasites persisted in the peripheral blood. On January 7, 1923, when malaria treatment was considered, the blood was found to be positive. Quinine sulphate, 10 gr. daily, was given from February 15 to 29. Infected mosquitoes were fed on February 20, and thus 60 gr. were given before the infection and 90 gr. after. No pyrexia followed, but the blood showed scanty parasites from March 14 for a few days, thereafter becoming negative. On April 23 parasites again found. From April 23 to 25 quinine sulphate, 30 gr. daily, was given. On May 24 an intramuscular injection of 2 c.c. of infected blood was given, but no infection followed, the blood remaining negative.

CASE 2.—The patient gave a history of malaria previously. On August 23, 1924, an intramuscular injection of 2 c.c. of infected blood was given. No pyrexia followed, but the blood became scantily positive from September 2 to 6; thereafter it was negative. On September 16 the patient was again inoculated intramuscularly with 2 c.c. of infected blood. The blood became positive from September 20 to 27, but there was no temperature change. On December 7, 9, 12 and 15 intramuscular injections of 1 c.c. of adrenalin were given, and on December 10 1 c.c. of milk. The blood continued to be negative until December 15, when two infected cells were found in the blood-film.

CASE 3.—The patient was infected with mosquitoes on November 23, 1923; double tertian infection followed. He was allowed to have twelve rigors. Quinine sulphate, 30 gr. daily, was given from December 23 to 25. As there had been little mental change an attempt was made to reinfect on July 20 by intramuscular injection. No rise of temperature followed, but the blood was positive from August 1 to 4; after that it was negative. Even here, however, the parasites appear to have become resistant to the immune body, for there was a relapse with parasites in the blood from August 24 to 30, but no temperature changes.

SUMMARY.

1. The malaria treatment of general paralysis is justifiable and hopeful, provided the patients are in fair physical health. The earlier the case the better the prognosis. The treatment is contra-indicated where the patient is likely to have a fatty heart or where there is poor physical health. It may be added that the administration of strychnine, with digitalin or strophanthin to steady the heart, is advisable and helpful, especially during the later pyrexial attacks.

2. Relapses of malaria do occur, but practically only in mosquito-infected cases.

3. Compared with infection by the inoculation of trophozoites, it would appear that infection by the sporozoites from the mosquito produces a parasite which readily becomes resistant to the immune body, and thus relapses frequently occur.

4. A previous attack of malaria would appear to induce partial immunity; although scanty parasites appear in the peripheral blood, there is no rise of temperature.

I wish to thank Prof. Warrington Yorke for providing the infected mosquitoes and for his encouraging advice; Dr. G. A. Watson, Pathologist to Rainhill Mental Hospital, for assistance with the biochemical tests; and Dr. F. M. Rodgers, Medical Superintendent

of Winwick Mental Hospital, for permission to publish these notes, and for his kindly supervision and guidance.

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Medico-Legal Notes.

HOUSE OF LORDS.

HARNETT v. BOND AND ANOTHER.

On May 15, 1925, a further stage in this case was concluded when the Lord Chancellor and Lords Dunedin, Atkinson, Sumners and Buckmaster delivered their considered judgment on the appeal from an Order of the Court of Appeal reversing the judgment arrived at when the action was originally tried before Mr. Justice Lush as reported in these columns.

The appeal was dismissed, and the position again is that judgment remains in favour of Dr. Adam, and Dr. Bond has to undergo the ordeal of a new trial.

JUDGMENT.⁽¹⁾

The Lord Chancellor in his judgment, after a close analysis of the facts of the case and the proceedings both at the original trial and before the Court of Appeal, continued as follows :

As regards Dr. Bond, he (the Lord Chancellor) felt no doubt whatever that the Court of Appeal was right in ordering a new trial. It was not disputed that, on the assumption that the findings of the jury as to the appellant's mental condition on December 14, 1912, were correct, Dr. Bond had no right to cause the appellant to be detained at the office pending the arrival of Dr. Adam's car, and was liable for damages for that illegal detention. But those damages must, on the authorities, be confined to such as were the direct consequence of the wrong committed ; and to hold that the detention of the appellant at the offices for a few hours was the direct cause, not only of his being retaken and conveyed to Mallings Place, but also of his being confined in that and other houses until October, 1921, appeared to him to be impossible. Dr. Bond could not and did not direct or authorize Dr. Adam to retake the appellant or to confine him at Mallings Place ; the retaking and confinement were the independent acts of Dr. Adam, and each of them was a *novus actus interveniens* sufficient to break the chain of causation. Further, the confinement of the appellant could not have continued during nine years without repeated examination and re-certification by the proper authorities ; and for the consequences of those events Dr. Bond could not on any intelligible principle be held to be responsible. Whether the direct consequences of Dr. Bond's action in detaining the appellant at the office ceased when the appellant was handed over to the two attendants and entered the car, or on his arrival at Mallings Place, or

later on his being examined by Dr. Adam, it was not necessary now to say. That might be a question to be determined at the new trial. But in any case it appeared to him that those consequences could not on any just view of the matter be deemed to have extended beyond 7 o'clock on the evening of December 14, 1912. It was argued that even on this view of the matter the appellant was entitled to judgment against Dr. Bond for £5,000, as the damages assessed by the jury for detention at the offices; but this finding was obviously coloured by the directions given by the learned trial judge on the question of damages, and by the addition to the question of the words "taking into consideration the whole purpose for which he was so detained," and it appeared to him that the whole matter ought to receive fresh consideration at the hands of a jury.

With regard to Dr. Adam, it was remarkable that, whereas he was charged in the pleadings with conspiracy and false imprisonment, no direct question was put to the jury as to either of those charges. The charge of conspiracy was apparently abandoned during the trial, and in any case it was plainly negatived by the findings of the jury in answer to the 13th and 14th questions. The charge of complicity in the false imprisonment at the Commissioners' offices was negatived by the answer to the 17th question, and there was no finding of false imprisonment by Dr. Adam at Malling Place. Why, then, was Dr. Adam held liable in damages at all? It must have been on the ground of the answer of the jury to the 15th question, namely, that Dr. Adam in acting as he did—in sending a car and taking the appellant back to Malling Place—did not take reasonable care; and yet want of reasonable care was not charged against Dr. Adam in the pleadings, and the issue only arose on his defensive plea founded on section 330 of the Act. It appeared to him that on this ground alone—namely, the total failure of the plaintiff to establish either of the charges made by him against Dr. Adam, the latter would be entitled to judgment. But in a case of this kind it was undesirable to base a decision on any narrow ground; and he proposed to consider shortly whether, either on the findings of the jury or on the evidence, there was any ground for the judgment entered against Dr. Adam.

First, then, was there any ground for charging Dr. Adam with conspiring with Dr. Bond to cause the plaintiff to be detained and removed to Malling Place? Plainly not. There was no evidence to support such a charge, and it was negatived by the findings of the jury. He therefore dismissed that charge as wholly untenable. Secondly, was there ground for charging Dr. Adam with false imprisonment—i.e., with retaking or detaining the plaintiff without lawful authority? As to this, it was argued that under the terms of the leave of absence order set out above, Dr. Adam could only take back the appellant if the mental condition of the latter required it, and that, as the jury had found the appellant to have been sane on December 14, 1912, that condition was not fulfilled. In his opinion there was no foundation for that argument. The provision in the leave of absence order empowering the medical officer to take back the patient "if his mental condition requires it" could not mean that the medical officer was to take back the patient (if at all) at the risk of having it found by a jury many years afterwards that the patient's mental condition was consistent with his remaining at large. Some person must be the judge of the patient's mental condition at the time when the question arose, and that person could only be the medical officer in whom the power to retake him was vested. Nor was there any substance in the suggestion made by counsel for the appellant that the power to retake the patient reserved by the order could not be exercised by retaking him outside the licensed house; he thought it clear that it was capable of being exercised wherever the patient might be found. When once the patient was retaken, the leave of absence order came to an end, and he could be detained under the existing reception order.

But thirdly, stress was laid on the finding of the jury as to want of reasonable care, and it was said that a medical officer could not retake a patient out on trial unless he acted with reasonable care in so doing, that the onus was on him to prove reasonable care, and that if he failed to do so the retaking was void. That argument appeared to him to be fallacious. The leave of absence order authorized the medical officer to retake the patient if the patient's mental condition required it. If this power was exercised negligently, it might be that there was a remedy, but the negligence did not make the retaking unlawful, and the remedy (if any) was by action for negligence and not by action for false imprisonment. But apart from this observation, he agreed with the Court of Appeal in holding that in the

present case there was no evidence on which the jury could properly find Dr. Adam to have failed to exercise reasonable care. It was suggested that he should have gone up to London himself or should have sent his assistant. But it was proved that the assistant was entitled to be absent from Malling Place on that afternoon, and that Dr. Adam could not leave the house without a medical officer; and in these circumstances he was entitled to rely on the information given him by Dr. Bond on the telephone, coupled with his own previous knowledge of the case, as sufficient ground for bringing the patient back, subject, of course, to the duty (which he performed) of personally examining him on his return. He agreed that there was no evidence of negligence and that Dr. Adam was entitled to judgment.

He desired to make one further observation. The fact that the appellant, whom the jury found to be sane in December, 1912, and whom they doubtless considered to be quite sane at the time when the action was heard, had been confined as a lunatic during the greater part of the interval between those dates, had naturally given rise to anxiety. It was not proved at the trial or found by the jury that during that interval the appellant was of sound mind; but it was not impossible that the jury took that view, and desired to compensate the appellant for his long detention by giving a verdict for heavy damages against the two defendants. If the defendants had been really responsible for an unjustifiable detention of the appellant during all those years, the sum awarded might not have been excessive; but the full investigation of the case both by the Court of Appeal and by this House had led to the conclusion that no such responsibility could be justly laid on Dr. Bond or on Dr. Adam. The Lunacy Acts provided for the protection of the public against the risk of unjustified detention by forbidding the detention of any person as insane except on a proper certificate and in a place duly certified for that purpose, and by requiring that every patient so confined should be personally seen and examined at regular intervals both by the Commissioners in Lunacy and by the visiting justices, and should be free to make complaint (in letters which must be forwarded unopened) to the Lord Chancellor or the Judge in Lunacy, to the Secretary of State or to the Commissioners, or to the persons (generally his relations) on whose petition he had been confined. It might be—he did not say that it was—the fact that all these precautions were insufficient, and that the lunacy laws required to be further strengthened in the interests of the persons whom they might affect. But even if that was so, that was no reason for visiting with vindictive penalties persons who had acted in good faith, and who were not responsible for any defect in the law.

In his opinion the Court of Appeal came to the right decision, and he moved their lordships that the appeal be dismissed, with costs.

Lord Dunedin and Lord Buckmaster gave judgment to the same effect.

Lord Atkinson and Lord Sumner concurred.

Solicitors: Messrs. Rooper and Whately; the Solicitor, Ministry of Health; Mr. W. E. Hempson.

(1) Extract from the *Times* report, May 16, 1925.

REX v. HUBERT STERRY.

This case was tried at Gloucester Assizes, June 8, 1925, before Mr. Commissioner Vachell. The prisoner was charged with unlawful carnal knowledge of a girl of 8 years of age. The prisoner is an epileptic. And a somewhat novel line of defence was suggested by his counsel, who urged that the offence had been committed during a condition of epilepsy. Counsel did not, however, ask for a verdict of "guilty but insane," but suggested that as there was no voluntary act on the prisoner's part he was entitled to an acquittal. The judge refused to entertain this view, saying that there could be no half-way house. Either the prisoner was responsible, or, if he had committed the offence during an epileptic

condition, he must be detained as a criminal lunatic. With this position we think all our readers will agree.

A very detailed statement, made by the prisoner, was read, dealing with his movements on the day of the assault. This ended with the words, "I went quite silly, and lost my senses for quite half-an-hour. I went into a sort of fit, and when I came round I had hold of her hands." The prisoner gave evidence, and stated that he had no recollection of the serious parts of the child's story, but that he did remember what he said to her afterwards, how he gave her a penny, pinned up her clothes, and told her to go home.

Dr. M. Hamblin Smith, Medical Officer of Birmingham Prison, gave evidence. The prisoner had been under his charge, and was an epileptic. There were conditions connected with epilepsy in which a man might commit a crime of which he had no recollection afterwards. These conditions might precede, follow, or replace a fit. But no conditions of this kind had occurred while the prisoner had been under observation. And the witness considered that it was extremely improbable that the offence could be accounted for in this way. He considered that all the circumstances of the case were against such a supposition.

The judge summed up. The prisoner was found guilty, and was sentenced to 15 months' imprisonment.

REX *v.* ERNEST RHODES.

THIS case was tried at the Central Criminal Court on May 15, 1925, before Mr. Justice Greer. The prisoner was 19 years of age, and was accused of the murder of a girl named Blackaller, who was a pupil-teacher at a dancing academy. The facts in the case were not disputed, the prisoner having made a confession. And the interest gathered round a difference of opinion as to the prisoner's mental state at the time of the crime.

Evidence was given that the prisoner was always talking about Thorne and other murderers, and that he had expressed the opinion that Thorne was a hero. The prisoner was often depressed, and complained of his head, and his appetite was enormous. His sister stated that he had been regarded as "peculiar" since he was a baby.

Dr. Hyslop had examined the prisoner on May 4. He had degeneration of the nervous system, and some of the symptoms indicated that he had actual brain disease. Enormous appetite was a very common symptom in mental deficiency. Dr. Hyslop regarded the prisoner as being a mental defective within the meaning of the Mental Deficiency Act; and he was, further, of the opinion that the prisoner was insane at the time of the commission of the crime.

Dr. John Carswell had also examined the prisoner, and gave evidence similar to that of Dr. Hyslop. Three medical officers from Brixton Prison were called by the prosecution to give evidence rebutting the suggestion of insanity. Dr. W. R. K. Watson considered the prisoner to be subnormal, but did not regard him as a certifiable mental defective. Dr. Rixon looked upon the prisoner's desire to wear his best suit at the trial and to have his hair cut as a sign of vanity. The outstanding characteristic of people received into prison on a capital charge was their vanity.

The Judge summed up. No report of this, unfortunately, is available. Faced with the conflict of expert testimony, the jury accepted the evidence given for the defence, and found the prisoner "guilty but insane." He was ordered to be detained "during His Majesty's pleasure."

THE ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

Memorandum of the Evidence given on May 4 and 5, 1925, on behalf of the Association to the Royal Commission on Lunacy and Mental Disorder (passed by the Association at the Quarterly Meeting, November 20, 1924). With Appendices.

INTRODUCTION.

THE Medico-Psychological Association of Great Britain and Ireland dates back to the year 1841, having for its objects the intercommunication on all matters calculated to improve the care, treatment and recovery of patients suffering from mental disorder, and the collaboration of research into the elucidation of the causes and prevention of insanity. In later years its activities have extended to the education and examination of medical men and women, and nurses engaged in the practice of psychiatry.

The Association consists of between 700 and 800 medical practitioners who are actively interested in the progress of psychiatry throughout the British Empire. The Ordinary or Subscribing Members are mostly medical superintendents or medical officers of mental hospitals, public and private, medical officers under the Prison Commission and county and borough education authorities, professors and lecturers in psychiatry attached to the universities and teaching schools of the Kingdom, and medical men and women in consulting or general practice. The Association has also 14 Corresponding Members living in foreign countries, and 30 Honorary Members. The Association comprises three Divisions for England and Wales, a Division for Scotland, and a Division for Ireland.

Quarterly general, as well as biennial divisional meetings are held for the discussion of papers, which, with other proceedings, are incorporated in a quarterly publication—*The Journal of Mental Science*. This Journal has existed since the year 1853. The Association has an annually elected President and other Officers of its Council, also a Parliamentary, an Educational, and other Committees. Since 1892 examinations have been held for its Certificate in Psychological Medicine, which has been given to 379 medical men, and at times an Honours Examination has been conducted for the Gaskell Prize. The Certificate of the Association is the forerunner of the Diplomas in Psychological Medicine recently instituted by many of the Universities and Conjoint College Boards. The Association originated, and for many years has actively promoted, the training of mental nurses. Since 1891 examinations have been regularly held for its Certificate in Mental Nursing, which has been awarded to more than eighteen thousand male and female nurses. Since 1917 the Association has also examined nurses for proficiency in training mental defectives, and 193 of such certificates have been granted. The Association is regarded by the medical profession as the leading representative body concerned with psychiatry in this country.

The preparation of evidence to be given on behalf of the Association was entrusted to a Committee consisting of the following members:

- *R. H. COLE, M.D., F.R.C.P. (Chairman), Physician for and Lecturer on Mental Diseases, St. Mary's Hospital, London; Examiner in Mental Diseases and Psychology, University of London. Chairman of the Parliamentary Committee of the Association.
- W. BROOKS KEITH, M.C., M.D. (Secretary), Medical Superintendent, St. Audrey's Hospital, Melton, Suffolk. Secretary of the Parliamentary Committee of the Association.
- J. CHAMBERS, M.A., M.D., Medical Superintendent, The Priory, Roehampton, London. Treasurer of the Association. Formerly Lecturer on Mental Diseases, Middlesex Hospital, and Co-Editor of the *Journal of Mental Science*.
- *M. A. COLLINS, O.B.E., M.D., Medical Superintendent, Kent County Mental Hospital, Chartham. Former General Secretary of the Association.
- R. EAGER, O.B.E., M.D., Medical Superintendent, Devon County Mental Hospital, Exminster.
- F. H. EDWARDS, M.D., M.R.C.P., Medical Superintendent, Camberwell House, London.

- *E. GOODALL, *C.B.E.*, M.D., F.R.C.P., Physician for Out-Patients in Psychiatry, Cardiff Royal Infirmary; Lecturer on Mental Disorders, Welsh National School of Medicine; Medical Superintendent, Cardiff Mental Hospital, Whitchurch. Former Co-Editor of the *Journal of Mental Science*. Ex-President of the Association.
- P. T. HUGHES, M.B., Lecturer on Mental Diseases, Birmingham University; Medical Superintendent, Worcester County Mental Hospital, Bromsgrove.
- *J. R. LORD, *C.B.E.*, M.B., Medical Superintendent, Horton Mental Hospital, Epsom. Co-Editor of the *Journal of Mental Science*.
- E. MAPOTHER, M.D., M.R.C.P., F.R.C.S., Physician and Lecturer for Psychological Medicine, King's College Hospital; Medical Superintendent, The Maudsley Hospital, Denmark Hill, London.
- *W. F. MENZIES, B.Sc., M.D., F.R.C.P., Medical Superintendent, Stafford County Mental Hospital, Cheddleton. Former President of the Association.
- *Sir FREDERICK W. MOTT, *K.B.E.*, LL.D., M.D., F.R.C.P., F.R.S., Consulting Physician, Charing Cross Hospital; Lecturer on Morbid Psychology and Hon. Director of Research, University and City of Birmingham; Examiner in Neurology, University of London; late Pathologist, London County Mental Hospitals. President-Elect of the Association.
- BEDFORD PIERCE, M.D., F.R.C.P., Consulting Physician, The Retreat, York. Former President of the Association.
- R. C. STEWART, M.R.C.S., Medical Superintendent, Leicester County Mental Hospital, Narborough.
- H. WOLSELEY-LEWIS, M.D., F.R.C.S., Medical Superintendent, Kent County Mental Hospital, Barming Heath. Ex-Chairman of the Parliamentary Committee of the Association.
- *R. WORTH, *O.B.E.*, M.B., Medical Superintendent, Springfield Mental Hospital, Tooting, London. General Secretary of the Association.

* Appointed witnesses.

The Association has for many years been alive to the backward position in many respects of psychiatry in the United Kingdom, and not a few circumstances, such as the apathy and prejudices of the public as regards the insane, reflected in the reluctance of Imperial and local authorities to commit themselves to further expenditure, and the fact that progress in certain directions would require action on the part of the Legislature before it could materialize, have militated against any real advance being made in many matters the Association has very much at heart.

REPORT OF THE STATUS OF BRITISH PSYCHIATRY COMMITTEE.

This stagnation, although it had received constant attention from the Association, its Council and several Standing Committees, was the subject of inquiry by a special committee appointed in 1911 to consider the "Status of British Psychiatry and of Medical Officers." That Committee took a wide view of their reference, and their Interim Report, published in 1913, set forth in no uncertain manner the grave defects psychiatry laboured under in Great Britain and Ireland. Chief among these were :

(a) The absence of proper provision for the early treatment of incipient and undeveloped cases of mental disorder.

(b) The few facilities there existed for the study of psychiatry and for research.

That Committee, among other measures, recommended :

That "clinics for mental disorders" in connection with the universities, medical schools and general hospitals should be established.

That as a general principle the admission to all mental institutions should be on a voluntary basis and without loss of civil rights.

That there should be power, if found necessary, to detain for a limited period incipient cases, such being notified to the Board of Control (hereinafterwards called the "Board of Mental Health," vide Recommendation 17).

That admissions should be direct into mental institutions, without reference to the Poor Law authorities.

That the use of "urgency orders" (hereinafterwards called "provisional orders," vide Recommendation 31) should be widened.

REPORT OF THE ENGLISH LUNACY LEGISLATION SUB-COMMITTEE.

With a view to giving effect to some of the recommendations of that Committee, many of which would necessitate emendation of the existing Lunacy Acts, the Association in 1918 appointed the "English Lunacy Legislation Sub-Committee," which reported late in the same year.

That Report has had a wide circulation amongst the authorities concerned, and in the light of reconsideration after a lapse of six years is found to require but slight emendation. The Report was published in order to promote a Bill to facilitate the temporary treatment of incipient mental disorders without certification. The

main principles in the Report involved the establishment of psychiatric clinics, associated wherever possible with general hospitals, the admission of voluntary boarders (hereinafterwards called voluntary patients) to be extended to rate-supported mental hospitals, and the recognition of the need of further provision for paying patients. These principles, and other supplementary proposals, were generally accepted, and in the main are to be found incorporated in the Mental Treatment Bill of 1923 (with provision for after-care and research). This Bill, for reasons which were not political, failed to reach the Statute Book.

THE EXISTING LUNACY ACTS.

The Association is of opinion that the vast majority of the community, including patients, is grateful for the protection afforded by the existing Lunacy Acts, and that the safeguards they provide against abuses and illegal detention have on the whole proved satisfactory.

These Acts have, however, failed to keep pace with medical progress, especially in regard to the treatment of the initial and more curable stage of mental disorders.

The Association, therefore, welcomed the appointment of a Royal Commission on Lunacy and Mental Disorders as an opportunity of stating its views in regard to amendment of the Lunacy Acts for England and Wales and, more especially, the principles involved in the reception, treatment, care and discharge of patients in institutions, and hopes that the Royal Commission will impress upon the Government the necessity of proceeding with a Mental Treatment Bill in harmony with the aspirations of the Association as set forth in this memorandum.

THE STATUS AND EDUCATION OF MEDICAL OFFICERS AND NURSES.

The Association notes with satisfaction that an increasing number of medical officers are granted study-leave, and obtain diplomas in psychological medicine, and that a large number of mental nurses now hold the Certificate in Mental Nursing of the Association.

SUMMARY OF RECOMMENDATIONS.

It is convenient here, before proceeding to set forth *in extenso* the Association's recommendations, to summarize the chief guiding principles upon which they are based.

The Association is of the opinion :

That "clinics for mental disorders," preferably in connection with the universities, medical schools and general hospitals, should be established.

That the reception into mental institutions of patients, whether of the private (hereinafterwards called "paying patients") or of the pauper (hereinafterwards called "rate-aided patients") class, should follow a similar procedure.

That a considerable proportion of admissions to mental institutions should be dealt with on a voluntary basis, so that such voluntary treatment should be extended to the rate-aided class, for which legislative sanction has already established precedents at the Maudsley Hospital and at the City of London Mental Hospital.

That special legal machinery should be devised for treating early non-volitional cases.

That a "provisional order" should be instituted as an intermediary measure before the usual "judicial order" for detention is enforced.

That when such detention is necessary for the cure or care of patients, medical certification should take place as constituting evidence, but that the authority for detention, discharge and continuation, i.e., renewal) of orders should entail the responsibility of some authorized person not acting in a medical capacity.

That a broader conception should be taken of the functions of both the central and local authorities for "lunacy" or mental health administration.

That the Poor Law authorities should be superseded by the local authorities in regard to the care, treatment and maintenance of necessitous patients suffering from mental disorders.

SUMMARY OF MATTERS OF FACT.

1. There are very few facilities for patients who are threatened with mental breakdown to obtain skilled treatment. As a rule they do not obtain it until certification takes place. But early symptoms of disorder often occur long before certification is possible.

2. Owing to efficient treatment being delayed the most valuable time for adopting measures to secure early recovery is lost.

3. There is strong objection to certification in itself on the part of the public, which is alive to the material and moral damage that it so often inflicts on the patient and his relatives, so that even when certification has become possible they refuse to resort to it, and thus still further postpone the adoption of efficient treatment.

4. In cases where certification has to be resorted to, the subse-

quent course of events often shows that this might have been avoided with advantage if there had been facilities for treatment under other conditions.

5. The experience gathered as the result of the war has opened the eyes of the public and the medical profession in a fresh way to the difficulties and needs of these cases.

6. Many medical practitioners, having had no opportunity of gaining knowledge of the manifestations and treatment of mental disorders in their early stages, fail to recognize the seriousness of the condition and to secure for their patients efficient treatment. They are also often deterred, by the necessity of certifying the patient, from advising suitable treatment. This unwillingness may be due to a genuine and proper doubt whether the condition is sufficiently definite to justify this procedure or to a natural reluctance to cause distress to the patient and his friends. In some cases direct evidence of insanity cannot be obtained at any particular interview, and certification and treatment are thus delayed.

7. In many early cases advantage would be taken of the opportunity for treatment were the voluntary patient system, with some modification of procedure, extended to rate-supported mental hospitals.

8. Many persons of the well-to-do classes, who are the subjects of mental disorder and are certifiable, are now placed in private houses and nursing homes without an order having been obtained for their reception. No intimation of their admission is given to the Board of Mental Health. No precautions are necessarily taken to ascertain that the conditions are favourable for the patient, or that efficient treatment is thus being obtained for him. It is felt that while many cases may be treated in private houses and nursing homes quite properly, provision should be made to give the competent authority the opportunity of ascertaining that houses and homes in which such patients are received are suitable for the purpose, and that the persons in charge are competent to treat cases of mental disorder.

RECOMMENDATIONS.

Recommendations 1 to 15, 24, 25, 41, 44, 51 and 53 were made by the English Legislation Sub-Committee of the Association, and with some emendations have again been adopted.

Recommendations 16 to 23, 26 to 40, 42, 43, 45 to 50, 52, and 54 to 58 are the outcome of the more recent deliberations of the Special Committee appointed to prepare this memorandum (see page 2), the

Parliamentary Committee and the Council, and were adopted at a General Meeting of the Association held on November 20, 1924.

Recommendation 1: The Association considers that the opportunity is afforded now for a further revision of the Lunacy Acts for England and Wales.

Although some desire to see the Lunacy Acts entirely re-cast, with abolition of the justice's order and other legal formalities, the majority are satisfied that such far-reaching changes are not expedient, and that the reforms most urgently needed could be obtained by an Amending Bill.

As the Association cannot but think that all, with experience of the subject, agree that the Law now presses hardly on certain cases, rate-aided and paying alike, is not abreast of modern requirements and aspirations, and is not working in the best interests of the State, it has endeavoured to frame proposals to meet these defects.

In doing so, it has kept in mind on the one hand the practical convenience and view-point and possible prejudice of those for whose benefit the measures suggested are intended, and on the other the necessity of winning the support of instructed lay opinion, the medical profession and the constituted authorities.

Psychiatric Clinics and Research Laboratories.

Recommendation 2: That clinics be established by local authorities for the treatment of nervous and mental diseases in their early stages; and that in the organization of clinics special provision be made for children.

Recommendation 3: That voluntary patients should be received and also that provision be made for the reception of non-volitional patients for a limited time without certification in such a psychiatric clinic. (*Vide Recommendation 58 (a) (c).*)

Recommendation 4: That such a clinic should be where possible an annexe to a general hospital or housed in a special building.

Recommendation 5: That such a clinic should be adequately staffed and the medical and nursing personnel should include special staff trained in psychiatric work.

Recommendation 6: That it should be the duty of local authorities to provide and maintain clinics either themselves or by arrangement with voluntary organizations for the purpose (*vide Recommendation 58 (a)*).

Recommendation 7: That the supervisory committee or committee of management of such a clinic should be a special committee of the local statutory committee of mental health.

Recommendation 8: That the inspection and approval of the

buildings used for such clinics should be the duty of the central Government department. (For definition see Recommendations 16 and 17.)

Recommendation 9: That it is desirable that neighbouring mental hospitals should be enabled to establish and maintain joint laboratories for research (*vide* Recommendation 58(a)).

Psychiatrical clinics aim at providing facilities for treatment of which ailing members of the public will be ready to avail themselves at the earliest possible moment, even when the condition is merely what is commonly described as one of "disordered nerves." This necessitates as complete a dissociation as possible from the existing statutory requirements for dealing with the insane.

It also necessitates the provision of facilities similar in character and equal in completeness to those available for purely physical ailments—that is, a thoroughly well-found and well-staffed clinic for both in-patients and out-patients. These facilities must be brought as near to the homes of the people as possible. They should therefore be established all over the country in large centres of population, preferably in connection with general hospitals, so that the people may easily obtain treatment or seek advice and so be encouraged to obtain instruction in mental hygiene at a stage when preventive measures are possible, and thus escape in many cases a serious breakdown, to the advantage both of themselves and the community; for thus would be retained as workers those who otherwise become a burden to their fellows.

No mere extension of the voluntary patient system in the mental hospitals (which is much to be desired on other grounds) would meet these requirements. Nor is it probable that any arrangements that might be made with general hospitals throughout the country would alone be sufficient.

Just as in ordinary hospitals some cases of delirium and excitement with loss of control occasionally occur and are dealt with without any great difficulty, so similarly cases of mental disease in their early stages where the symptoms are likely to subside under proper treatment would be received and suitably provided for in the proposed clinics.

The decision whether a case is or is not suitable for treatment in such a clinic would depend upon practical convenience and the nature and duration of the symptoms.

In large towns clinics should be part of, or annexes of, or failing these, affiliated to, the general hospitals for many important reasons (*vide* Appendices I and II), not least among them being that students may have opportunities of studying those early stages of mental disorder which as practitioners they will be called upon to treat.

Nurses undergoing hospital training could also take advantage of these opportunities to acquire a general knowledge of mental cases.

Clinics would also provide a valuable field for post-graduate work and for scientific research with the necessary laboratory accommodation.

Special clinics to act as "clearing houses" may be necessary in large districts, but it is hoped that if the bulk of the occurring mental disorder were overtaken while in its early stages, such "clearing houses" would be a disappearing factor in the mental health service of the country. Admission of suitable cases direct to mental hospitals is part of the policy of the Association.

As the Association is anxious to emphasize the necessity for the establishment of psychiatric clinics and research laboratories by local authorities, further detailed evidence on this important matter will be found in Appendices I and II.

Voluntary Patients in Mental Hospitals.

Recommendation 10: That mental hospitals should be encouraged to admit persons as voluntary patients without loss of civil rights on their signing an application to that effect addressed to the medical officer of the institution, provided:

(a) That there is accommodation approved of by the central Government department and the applicants are suitable persons.

(b) That they should be required to give 72 hours' notice in writing of their desire to leave the institution, after the expiry of which period they must cease to reside as such; further provided that, before the notice expires, the patient does not intimate in writing his desire to withdraw the notice.

Recommendation 11: That regulations should be made setting out the conditions on which the medical officer may admit voluntary patients.

Under the present Lunacy Acts voluntary patients may be received in registered hospitals and licensed houses. This facility should be extended to suitable persons, whether of the paying or rate-aided class, desirous of placing themselves under treatment in the county or borough mental hospitals.

Many patients who have recovered in a rate-supported mental hospital from a previous attack, and are on the verge of a relapse, wish to place themselves under mental hospital care again, but are, at present, unable to do so until they become certifiably insane, and then they must be referred to the relieving officer.

There will no doubt be other cases unable to afford the expense of a registered hospital or licensed house who will prefer to apply direct to a rate-supported mental hospital for treatment in the first instance, if they can do so under the conditions attaching to voluntary patients. Their admission thereto would depend upon their suitability.

The Board of Mental Health should be informed of all persons received as voluntary patients into mental hospitals, but their previous consent thereto, or that of the justices in the case of the licensed houses, seems unnecessary and interferes with the utility of the plan, as many patients object to making written application to the Board of Mental Health or the justices for permission, as at present required ; moreover, no such requirement obtains in the case of the registered hospitals.

Further, there appears to be no good reason why this mode of admission should be reserved for persons who cannot be certified as insane, as it conflicts with the fundamental principle that treatment should be begun at the earliest possible moment. It should be sufficient for anyone, being aware of his mental illness, voluntarily to sign a document expressing his desire to be admitted as a voluntary patient to a mental hospital for purposes of treatment.

For practical convenience it is much to be desired that the notice required to be given by voluntary patients of their intention to leave should be increased from 24 to 72 hours.

The reform suggested has long been advocated, and has met with practically no opposition.

Further Provision for Paying Patients.

Recommendation 12: That the central Government department should have power (a) to approve homes which are supported wholly or partly by voluntary contributions or which are privately owned, in which it shall be lawful to receive without certification more than one paying patient suffering from mental disease in its early stages, and (b) to give legal sanction to the reception without certification of such patients as single patients in houses not so approved, provided that a medical practitioner gives a written recommendation in each case, stating that suitable treatment can be obtained for the patient in the proposed house.

Recommendation 13: That on any such patient being received into or ceasing to reside in any approved (or recognized) home, or as a single patient in a house not so approved, the fact shall be intimated to the central Government department.

Recommendation 14: That it should be possible to transfer the jurisdiction for licensing a house from one authority to another on good reason being shown.

Recommendation 15: That certified patients and voluntary patients should be permitted reception direct to the branch establishments of registered hospitals and licensed houses.

It has to be recognized that the objection to certification in the early and curable stages of mental disorder is strongly felt by all classes, and the temptation, for those who can afford it, to send patients to unrecognized places of treatment is very great both for the patient's friends and their medical advisers. Those who receive such patients knowingly run the risk of prosecution, and there is no guarantee that they can or do give suitable care or treatment to the patients. The treatment of certain cases of mental disorder in suitable private houses and nursing homes is undoubtedly desirable, and the true interests of the patients should be obtainable in conformity with the law.

Where residential treatment is conducted for payment in the case of patients suffering from mental disorder which is deemed to be temporary, but who may be considered certifiable, it is desirable that the fact of their reception should be brought to the cognizance of the central authority. It is hoped that with this safeguard facilities may be granted for the treatment for payment by private persons or voluntary associations of early, undeveloped and recoverable cases of mental disease without the drawbacks attaching to certification.

It is suggested that the Board of Mental Health should be empowered to give legal sanction to the treatment of this group of cases without certification. This can only be done by provisions limiting the application of Section 315 of the Lunacy Act, 1890, which imposes penalties on those receiving persons of unsound mind for payment without certification. It is not proposed to do away with this Section, and as its enforcement is in the hands of the Board of Mental Health, it is practically necessary to give any powers over-riding its application to the same body.

The Central Authority.

Recommendation 16: That all matters of mental health be centralized in the Board of Control as the Government department under the Minister of Health and Lord Chancellor.

Recommendation 17: That such Government department or central authority be designated the "Board of Mental Health," instead of the present term "Board of Control," and that such Board should be increased in its medical personnel.

Recommendation 18: That at the statutory visits made to all mental institutions, public and private, and to patients in single care, one at least of the commissioners of the Board of Mental Health should be a medical commissioner.

Recommendation 19: That in making appointments of Medical Commissioners of the Board of Mental Health, it is important to take into consideration not only experience in mental disorders, but also experience in general medicine, and status in the medical profession.

Recommendation 20: That the remuneration of the medical members of the Board of Mental Health should be increased. The State should require the medical members of the Board to be of the highest standard of scientific and professional attainments.

The Local Authority.

Recommendation 21: That the management of all rate-supported institutions for the care and treatment of mental disorders and mental defect be vested in one statutory committee of mental health of a local authority.

Recommendation 22: That the statutory committee should direct all matters relating to mental health in the area, having regard to both voluntary and certified patients in rate-aided institutions, whether in clinics, mental hospitals, or elsewhere.

Recommendation 23: That the county or borough rate be utilized to support the maintenance of necessitous patients as well as that of the fabric of public mental institutions, and that such rate be supplemented by a Government grant, payable upon the certificate of the Board of Mental Health, which grant should extend to the provision for research, special medical and nursing training, and after-care.

Legal Formalities, etc.

Recommendation 24: That the existing Lunacy Acts should be called the Mental Disorders Acts, and an amending Act the Mental Treatment Act.

Recommendation 25: (a) That the words "lunacy" and "lunatics" be discontinued and the words "mental disorders" and "persons of unsound mind" be substituted.

(b) That instead of the word "asylum" the words "mental hospital" be used—county, city, or borough, as may be.

(c) That the word "rate-aided" be used instead of the word "pauper."

Recommendation 26: That patients who need care and treat-

ment for mental disease at the public expense should not, on that account, be termed, or be regarded as, paupers.

Recommendation 27: That in-patient voluntary treatment be legalized in rate-supported mental hospitals as well as in clinics, and that the maintenance charges in necessitous cases be defrayed out of public funds by the statutory committee.

Recommendation 28: That rate-aided patients requiring certification be afforded similar procedure as obtains with paying patients, *viz.*, the production of *two* medical certificates on petition for a judicial reception order, instead of a summary reception order on one certificate which is the usual practice at present.

Recommendation 29: That when a relative or friend of a rate-aided patient is unable or unwilling to act as petitioner, an officer of the local authority, or other suitable officer, may be the petitioner entrusted with the duties of carrying out the requisite formalities.

Recommendation 30: That it should be made possible for rate-aided patients as well as paying patients to be admitted to mental hospitals under a "provisional order" (*vide* Recommendation 31-35).

Recommendation 31: That the present system of urgency procedure for all unwilling patients might with advantage be superseded by the institution of a provisional order.

Recommendation 32: That a provisional order may be used not only on the ground of urgency, but so as to provide means of temporary care, observation and treatment under safe conditions.

Recommendation 33: That a provisional order with statement of particulars should be signed by a relative or friend, or by an officer of the local authority, authorizing the reception of a patient for temporary care, observation and treatment.

Recommendation 34: That a provisional order should be accompanied by a medical certificate in special form, specifying facts and reasons indicating that a patient is a proper person for temporary care, observation and treatment.

Recommendation 35: That a provisional order and certificate should last three days, but be capable of extension in suitable cases for a further period not exceeding twenty-eight days, provided such extension is sanctioned by a judicial authority, or by two members of the visiting committee of a public mental institution, who may direct a further examination by another medical practitioner.

Recommendation 36: That when a provisional order and certificate is about to expire, the following three courses should

be considered, according to the exigencies of the case, namely : (a) that the patient be discharged ; (b) that the patient may remain voluntarily, or be dealt with, if a non-volitional case, under some such procedure as that projected in Section 4 of the Mental Treatment Bill, 1923 ; (c) that a judicial reception order for detention be obtained on petition with two medical certificates.

Recommendation 37 : That verbal alterations in the present form of petition for a reception order are desirable, *viz.*, the deletion of the words "lunacy" and "lunatic or idiot" in the margin ; the substitution of "mental hospital" for "asylum," and "provisional order" for "urgency order" ; and in the statement of particulars accompanying a petition or provisional order, the substitution of "whether previous history of mental disorder" for "whether first attack," "age at the onset of mental disorder" for "age on first attack," "when and where previously under care and treatment for mental disorder" for "when and where previously under care and treatment as a lunatic, idiot, or person of unsound mind," "duration of present mental disorder" for "duration of existing attack," and the addition of questions as to the length of residence at present address if such is not the usual place of abode, and as to the maiden name of a patient who is a married woman or widow.

Recommendation 38 : That in the medical certificates (Form 8) used on petition, the words "separately from any other practitioner" be deleted as also in Section 29 (2) of the Lunacy Act, 1890 ; that a lettered space be inserted for "facts observed by the medical practitioner on previous occasions," and an additional lettered space giving his reasons for the necessity of detention.

Recommendation 39 : That in the reception orders (Forms 3, 4, 12, 15) the words "authorize (direct) you to receive and detain" be substituted for "authorize (direct) you to receive."

Recommendation 40 : That it is desirable that a judicial reception order should be made by a justice specially appointed in all cases, and who has seen the patient, and that the difficulties of procuring the services of a justice in certain areas should be remedied.

Recommendation 41 : That where no criminal offence is charged it is undesirable that justices should in court conduct the examination of mental cases for the purpose of making reception orders.

Recommendation 42 : That the present special report and certificate required to continue a reception order at stated intervals should be countersigned by a judicial authority, or

two members of the visiting committee of a public mental hospital, and that the latest date of signature should be the end of the existing quarter in which the special report falls due.

Recommendation 43: That a copy of such special report and certificate thus countersigned be accessible to a discharged patient, on appeal to the Board of Mental Health, as in the case of the original reception document.

Recommendation 44: (a) That there is much need of simplification of forms under the existing Lunacy Acts.

(b) That intervals in time require uniformity and where convenient should be defined in hours.

(c) That the duration and lapsing of "reception orders" require amendment.

Recommendation 45: That leave of absence on trial or for health should be encouraged, and that no ambiguity should occur to prevent the return at any time of a certified patient to the institution or house if the petitioner or medical officer deems such return expedient.

Recommendation 46: That the discharge of rate-aided certified patients should, as in the case of certified private patients, be vested in the petitioner, but that in the former case six days' notice in writing should be given to the medical officer of a rate-supported mental hospital by the petitioner, desiring the discharge of a patient, and that if the medical officer considers that it is not in the interest of the patient or of the public that the patient should be discharged, he should then be permitted to defer the matter for the decision of the visiting committee at its next meeting, which shall have power to over-ride the action of the petitioner.

Recommendation 47: That the existing restriction of discharge of a patient by the certificate of a medical officer under Section 74 of the Lunacy Act, 1890, should be countersigned by a judicial authority or by two members of the visiting committee of a public mental hospital.

Recommendation 48: That Section 75 of the Lunacy Act, 1890, which deals with discharge by two commissioners, and Section 83 which deals with discharge on recovery, be extended to include rate-aided patients in mental hospitals.

Recommendation 49: That the automatic discharge of a patient by escape after fourteen days is undesirable.

After-care.

Recommendation 50: That the after-care of rate-aided patients should receive due attention, and that the work done

by The Mental After-Care Association, or other bodies appointed to deal with after-care, should receive adequate pecuniary recognition by statutory committees.

Poor Law Infirmaries.

Recommendation 51: That it is undesirable that patients alleged to be of unsound mind should be removed to a workhouse or pauper infirmary before their reception in a mental hospital. If an intermediary stage is necessary after the provision of clinics for incipient cases it would be better supplied by a special clinic under the management of the local authority. Practical convenience such as a motor service should be available for the transfer of patients to mental institutions on lines similar to those adopted in the Public Health Service.

Recommendation 52: That a Poor Law infirmary may be regarded as an institution for mental disorders if approved by the Board of Mental Health.

Recommendation 53: That it should be permissible for patients transferred from a mental hospital to a Poor Law institution to be transferred back without re-certification.

Recommendation 54: That the present certificate of a medical officer of a Poor Law infirmary should not as in Section 24 (2) of the Lunacy Act of 1890 be sufficient authority for the detention of a patient for fourteen days, but should require the addition of a provisional order.

Recommendation 55: That reports on mental cases in all Poor Law institutions, as in mental hospitals, should be notified to the Board of Mental Health, and that the arrangements provided for mental cases should be under the management of the statutory committee of mental health of the local authority.

Recommendation 56: That better provision should be made for the care and treatment of senile cases in infirmaries approved by the Board of Mental Health, in order that every effort should be made to avoid the stigma of certification.

Protection to Medical Practitioners and Others.

Recommendation 57: That the protection afforded by Section 330 of the Lunacy Act, 1890, to medical practitioners, and to others engaged in pursuance of the Act, should be extended to stay proceedings at an earlier stage than at present, and that they should receive the same immunity as is given to witnesses in a court of law.

Mental Treatment Bill, 1923.

Recommendation 58: In the event of the Mental Treatment Bill, 1923, as amended by the House of Lords, being again introduced to Parliament, the Association will press for emendation on the following lines:

- (a) **Section 2:** Subsections (2) and (3) should be obligatory as regards provision of institutions in accordance with Recommendation 6. That the term "institution" should be defined within the meaning of "approved institution" under Section 4 (2). That "voluntary patient" should be substituted for "boarder" in Subsection (3), and that there should be no legal formality necessitating the written application of a voluntary patient for reception to a public mental clinic. That a further Subsection is desirable dealing with voluntary patients in private houses and nursing homes in accordance with Recommendations 12 and 13. That in addition to research in Subsection (5) the expenses of special medical and nursing training should be included in accordance with Recommendation 23.
- (b) **Section 3:** The Association regards both subsections as opposed to Recommendations 16 to 20.
- (c) **Section 4:** The Association desires that voluntary patients should be dealt with under Section 2, and that Section 4 should deal only with non-volitional patients, and minors. That extensions for treatment should be permissible for further periods of six months. That this Section should also apply to non-volitional patients, and minors in private houses and nursing homes. That one recommendation from any medical practitioner should be required. That notification to the Board of Mental Health within 24 hours of reception should be a sufficient safeguard, and render an annexed statement by a justice or minister of religion unnecessary.
- (d) **Section 5:** The Association considers that this Section requires redrafting to distinguish discharge of voluntary patients from non-volitional patients, and minors, and that notice of leaving should be in writing.

OFFICE OF THE ASSOCIATION,
11, CHANDOS STREET,
CAVENDISH SQUARE, W. 1;
January, 1925.

APPENDICES.

These appendices were not submitted to the Association and are not therefore included in the approval given by the Association on November 20th, 1924. They have the general approval of the witnesses appointed to represent the Association before the Commission.

APPENDIX I.

PRÉCIS OF EVIDENCE

ON THE

NEED FOR BETTER PROVISION FOR EARLY TREATMENT OF MENTAL DISORDERS, AND FOR PSYCHIATRIC EDUCATION AND RESEARCH.

By Brevet Lt.-Col. Sir FREDERICK MOTT, K.B.E., F.R.S., LL.D., M.D., F.R.C.P.

I represent, with others, the Medico-Psychological Association of Great Britain and Ireland, of which I am President-Elect.

I am Consulting Physician to Charing Cross Hospital, having, prior to the war, had thirty years' experience of general medicine.

During the war I was Neurological Expert to the War Office, and was Medical Director of the Maudsley Neurological Clearing Hospital.

For twenty-eight years I was Pathologist to the London County Mental Hospitals and Director of the Pathological Laboratory for Research. I now hold the post of Hon. Director of the Course of Psychological Medicine at the Maudsley Hospital.

I am, at present, Lecturer on Morbid Psychology to the University of Birmingham, and Hon. Director of Research to the Conjoint Board of the Corporation of the City and the University of Birmingham.

I am Examiner in Psychological Medicine to the Conjoint Board of the Royal Colleges of Physicians and Surgeons, and during the last four years I have been Examiner at the London University. I have held Examinerships in physiology, pathology and medicine at various universities and to the Royal Colleges.

During the last thirty-five years I have been engaged in the practical study of pathology in relation to general medicine, and especially in its relation to the causation and treatment of nervous and mental diseases.

The evidence which I am desirous of submitting falls under the three following headings :

(1) Early Treatment. (2) Psychiatric Education. (3) Psychiatric Research.

EARLY TREATMENT.

At the present time the insane are, owing to their antisocial tendencies or conduct, segregated, with few exceptions, in huge institutions as a matter of economy; these are now for the most part known as county and borough mental hospitals; unfortunately in the majority of instances the name alone has been changed, for, excepting in the newer asylums, no separate buildings and clinical laboratories for the diagnosis and treatment of recent recoverable cases have been provided. This mixing of acute and possibly recoverable cases with the chronic incurable is now being recognized as a thoroughly bad system, for it tends to create ideas of hopelessness in recent admissions and not infrequently of helpless despair of returning to their homes. The same feeling of despair tends to exist among those who, in these large institutions, have the care and treatment of patients whose chronic mental disorder has often resulted from neglect of medical aid in the early stages of the disease.

We may well turn, therefore, to what Francis Bacon said regarding supposed incurable diseases :

"A work therefore is wanting upon the cures of reputed incurable diseases, that physicians of eminence and resolution may be encouraged and excited to pursue this matter, as far as the nature of things will permit, since to pronounce disease incurable"—and I would add unpreventable—"is to establish negligence and carelessness as it were, by a law, and screen ignorance from reproach."

I will support this statement by a passage from "A Mental Hospital, its Aims and Uses" (*Archives of Neurology and Psychiatry*, vol. iv), by the late Dr. Henry Maudsley, who backed his opinion, during his lifetime, by giving £30,000 to the London County Council to build a hospital for early treatment, education and research.

"That there are crowds of incurable cases of insanity congregated in large asylums is undoubtedly owing in some measure to the common neglect of early treatment when the malady is most curable. The longer the disease has lasted, the smaller are the chances of recovery; and the time soon comes in some cases when, if neglected, there is no remedy. Here, as everywhere, the right treatment is to stop the beginnings of mischief. It may be reasonably expected, therefore, that besides the prevention of incipient insanity by wise counsel and treatment in its out-patients' department, the early treatment of acute insanity in a special hospital will prevent the present necessity and perhaps lasting expense of placing

some patients in a lunatic asylum—the very name of which is perhaps a terror, the remembrance a sort of nightmare, and the social consequences a life-long prejudice.”

Every effort should therefore be made to induce the patient, the friends and the practitioner to seek skilled advice or treatment with as little delay as possible. This can only occur if the fear of certification and of being sent to an asylum be removed, and by the provision of greatly increased facilities for early treatment in clinics attached to the general hospitals or suitable hospitals affiliated with the general hospitals.

That there is a great lack of facilities for early treatment of mental and nervous disorders is generally admitted, and the question arises, *How can this lack be overcome in the most economical and efficient manner?* The following suggestions for early treatment have been made :

(1) The establishment of hospitals on the lines of the Maudsley Hospital—a recognized institution for the care and treatment, without certification, of early cases of mental disease and of functional neuroses, in close connection with King's College Hospital, and a recognized school of the London University. An ideal scheme, but it could only be carried out by a City or County Council with a large population—*e.g.*, Birmingham might establish such a “Mental Hospital” in association with either of the two great general hospitals in that city, and affiliated as a school of the University; or a group of authorities representing boroughs and county councils in the Midlands might combine with Birmingham for this purpose.

(2) The establishment of psychopathic clinics, efficiently staffed and equipped with wards or beds at general hospitals, the financing of this clinic being based upon the lines adopted for tuberculosis and V.D. clinics.

(3) The establishment of hospitals associated with, but outside the grounds of existing asylums, provided with properly equipped and staffed clinical laboratories under borough or county councils, and, where possible, affiliated with a general hospital, a medical school or a university.

(4) That the present system of admission of early cases of mental disorder into Poor Law infirmaries should be discountenanced unless the provision for care and treatment of such cases has been approved by high authority. Especially does this approval apply if the time of detention be extended, as has been recommended.

There is a great advantage in the closer association of rate-aided institutions with general hospitals for the services of specialists, *e.g.*, pathologists, ophthalmologists, gynaecologists, ear, nose and

throat specialists, radiologists and dentists could be obtained. In fact, the more we link up the treatment of mental disorders and diseases with bodily disorders and diseases, the more will the influence of mind on body and body on mind be apparent, and help towards a rational solution of this great problem concerning mental health.

PSYCHIATRIC EDUCATION.

Sir George Newman, in an admirable report, *Some Notes on Medical Education*, in 1918, stated :

"It is deplorable that the English student of medicine should have no opportunity of learning modern methods of psychiatry, or of diagnosing incipient and undeveloped cases of mental disease."

Again in 1923, the same author in *Recent Advances in Medical Education in England* points out how necessary it is for the general practitioner to have been taught as a student the subjects of psychology and psychopathology. He states that—

"The general practitioner stands in somewhat peculiar need of knowledge of mental conditions. He must first know the normal mind, then the signs of true mental deficiency, and lastly, the various forms of mental disease. His need in these respects becomes obvious to him at the onset of practice, for mental factors play a part in almost every case of illness. . . . Yet at present we teach the student nothing of the make-up of the normal mind . . ."

Sir George Newman shows how necessary this instruction is to the practitioner in the following passage :

"He must be equipped for miscellaneous medical practice and emergencies, and he must be competent to diagnose all the chief forms of mental disease and defect (Lunacy Act, 1890, Mental Deficiency Act, 1913, Elementary Education (Defective and Epileptic Children) Acts 1899 and 1914). The certificates under these Acts necessitate a diagnosis, a record of the clinical grounds for it, and in some cases the medical reasons for detention or custodial care."

The war has shown the great need of systematic teaching of psychological medicine as part of the medical curriculum. In 1907, in the preface to vol. iii, *Archives of Neurology and Psychiatry*, I strongly advocated this teaching for post-graduates, and suggested that a diploma of psychological medicine should be instituted, for I felt sure that it would raise the tone of the medical men employed in the care of the insane, and lead to a better diagnosis and treatment of mental disease in the early curable stage. I also advocated the establishment of a psychiatric clinic in London, where incipient and borderland cases could be seen and treated. I was convinced in 1907 that the institution of a diploma in psychological medicine would prove as valuable as the diploma of public health, and I called upon the President of the Royal College of Physicians to try to induce the Royal Colleges to give such a

diploma, but I was quite unsuccessful. In October, 1908, the Medico-Psychological Association appointed a Post-Graduate and Diploma in Psychological Medicine Committee, and in January, 1910, circulated among all universities, medical schools and examining bodies its model regulations and curriculum for a diploma in psychological medicine. These have recently been revised and re-issued. Just prior to the war Cambridge University led the way and instituted such a diploma, and now many universities and the Royal Colleges give diplomas of psychological medicine. The systematic teaching of psychological medicine has been in operation now for four years at the Maudsley Hospital. Seven courses have been completed, and the eighth course has commenced in January. These classes have been well attended, and a large number of those graduates and medical officers who have attended the courses of instruction have obtained a diploma in psychological medicine.⁽¹⁾ This has produced a new spirit among the medical officers of the London County Mental Hospitals—a spirit fostered, I am pleased to say, by the Mental Hospitals Committee of the London County Council; moreover, the possession of the diploma is becoming indispensable for senior appointments, and it is more and more being recognized that administrative capacity is not the only qualification necessary for the posts of medical superintendent and of a senior medical officer.

It is not only medical officers who require training, but also all those engaged in the care and treatment of the insane and in their after-care. The former has for a long time been carried out by the Medico-Psychological Association. "Before care" is even more important, *i.e.* public mental hygiene, and particularly the recognition of the importance of habit formations in childhood and early adolescence. The psychopathic clinics at the general hospitals will do much to educate the public in mental hygiene.

PSYCHIATRIC RESEARCH.

It is only by psychological, sociological and biological research that we can hope to ascertain the causes and contributory factors of mental disorders, their prevention and their remedial treatment. When I was appointed Pathologist to the London County Council to investigate the causes of mental disorders, I insisted upon the necessity of retaining my association with a general hospital. I found this of the very greatest value in relation to the study of alcohol and insanity, syphilis as a cause of mental disease, the reproductive organs and the ductless glands and their relation to certain

(¹) A synopsis of these courses of instruction was handed in.

types of mental disease, and the influence of chronic microbial infections as a cause or an important contributory factor of mental disease.

Syphilis as a cause of general paralysis was not mentioned in the asylum reports. Prevention and early treatment, I am confident, will see not only this disease rapidly decline, but cases of organic brain disease, dementia, imbecility and idiocy will likewise diminish in numbers.

Severe epidemics of dysentery were frequent in the London asylums and the patients were said to die of ulcerative colitis, for there was a prevalent idea that the disease was due to the mental affection. I was able to show that it was an infectious disease, and could be prevented by isolation and sanitary measures. I have seen patients die of this disease within a short time of admission, and certainly if a patient recovers, a serious bodily disease such as this must militate against early recovery from the mental disease.

Not only from a medical point of view but from an economic point of view should scientific research be developed and encouraged. In my judgment research would be most satisfactorily carried out by the provision of a central laboratory in association with a university for a group of asylums. This laboratory should have a director and an efficient and adequately paid staff, which should collaborate with the asylums of the group, and, if necessary, undertake skilled routine laboratory investigations which could not be efficiently undertaken in the clinical laboratories of the asylums. The director should promote and advise research in the asylums of the group and afford help when necessary. The director and his staff should undertake systematic researches in collaboration with the medical superintendents and the medical officers, but should retain an independent position. The central laboratory should be equipped with the necessary rooms and appliances for physiological, psychological, histological, bacteriological, biochemical and psycho-physical investigations.

Such a central laboratory for the London County Council Mental Hospitals exists at the Maudsley Hospital and at Cardiff. A Joint Board of Research of the University and Corporation of the City of Birmingham has been established with a well-equipped central laboratory, of which I am at present the Honorary Director. It is hoped that this may extend its usefulness in promoting research by the incorporation of a number of the Midland asylums. Those asylums which contribute to the maintenance of the laboratory would have a representative on the Board of Research.

In conclusion I may say I have visited many of the psychopathic hospitals on the Continent and in the United States.

APPENDIX II.

PRÉCIS OF EVIDENCE

ON THE

LACK OF FACILITIES FOR EARLY TREATMENT OF MENTAL AND ALLIED DISORDERS IN ENGLAND AND WALES, AND FOR SCIENTIFIC INVESTIGATION IN RESPECT OF CAUSATION, PREVENTION AND TREATMENT.

By Lieut.-Col. E. GOODALL, C.B.E., M.D., B.S., F.R.C.P.,
M.R.C.S.

I represent, with others, the Medico-Psychological Association of Great Britain and Ireland.

I am Medical Superintendent of the Cardiff City Mental Hospital, having occupied this post since 1906, the hospital opening in 1908.

I was in charge of this institution—then known as the Welsh Metropolitan War Hospital—during the War. One-half the hospital was, for a considerable time, used for neuro-psychiatric cases amongst the troops.

I am Lecturer on Mental Disorders, Welsh National School of Medicine; Physician for Out-Patients in Psychiatry, Cardiff Royal Infirmary; an Ex-President, Section of Psychiatry, British Medical Association; an Ex-President, Medico-Psychological Association of Great Britain and Ireland.

I was formerly Co-Editor of the 'Journal of Mental Science.'

I was Medical Superintendent of the Joint Counties Asylum, Carmarthen, from 1894 to 1906.

I was Assistant Medical Officer and Pathologist at the West Riding Asylums, Sheffield and Wakefield, from 1889 to May, 1894.

I was Resident Clinical Assistant at Bethlem Royal Hospital, London, for one year.

Altogether I have had some thirty-six years' experience of mental disorders—a life study, in fact.

My evidence is concerned with the second reference to the Royal Commission—*The Lack of Facilities for Early Treatment of Mental and Allied Disorders in England and Wales, and for Scientific Investigation in respect of Causation, Prevention and Treatment.*

This has been insisted on by informed medical opinion for thirty years to my own knowledge. The Lunacy Acts of England and Wales mainly concern themselves with the segregation and care of the "lunatic," the protection of him, of his property, and of the public—wholly legal conceptions. Custodial and fiduciary conceptions dominate these Acts, so that a perusal of them leaves

one with the impression that merely an alien is being dealt with, and not a sick man. Had the conception of a "patient" rather than a "lunatic" been kept more in view, it is difficult to believe otherwise than that provision for full facilities for the best available treatment, under the least hampering conditions, would have been made. Long before 1890 (the date of the main Act) provision on these lines was recognized as proper for the sick in general. It has been necessary to wait until 1923 to see authoritative recognition given to the need for extending to the insane as a whole the privilege of treatment without subjection to the legal formalities imposed by the Lunacy Acts. The Mental Treatment Bill of 1923 constituted this recognition, and its introduction implied the need for fresh legislation, so that better provision for therapeutic facilities might be made.

Cases of mental disorder, in the earliest phases, amongst the rate-aided classes in England and Wales, at present receive little or no treatment. In so far as they are dealt with at all, it is in common with a mass of incurable disease in asylums (mental hospitals) under the Lunacy Laws, with but little opportunity for classification and individual attention. This means that a volume of early and curable disease has been diverted from the provision made for dealing with disease as a whole, and provided for by segregation in institutions which have no connection with general hospitals, or the centres of medical thought, with which the staffs of those hospitals have the flimsiest association. The investigation and treatment of these cases have, in consequence, been undertaken by a limited number of medical men, who have but little opportunity of keeping in touch with their *confrères* in other branches of the profession (they are segregated, like the patients), and who are not, and cannot be, equipped to deal with the various branches of medicine, all or any of which may be required by these patients. They are assisted by nurses with specialized training only, without general hospital training, with the exception of a few of the officers, such as the matron, and her deputy.

The result has been that insanity has come to be looked upon as a thing apart—as, one may say, a pathological curiosity by the medical profession at large.

Practical arrangements for treating mental disorders in their incipient stages, and for their scientific investigation, are in this country thirty years behind in comparison with leading Continental countries, though the making of such has been urged by the Medico-Psychological Association, or individual members thereof, for a great many years (since about 1889 by individuals, and since about 1911 by the Association).

At the last (Seventeenth) International Congress of Medicine which took place, and which was held in London in 1913, I acted as one of the secretaries in the Section of Psychiatry. With a view to promoting the establishment of clinics in this country, the opportunity was taken to invite Prof. Sommer, Director of the Clinic in Neurology and Psychiatry at Giessen University, to deliver an address on the subject of these clinics. Nowhere is this system better developed than in connection with the German universities. Amongst other matters, Prof. Sommer informed us that through the working of the Giessen (Hessen) Clinic, the need for providing further asylum accommodation in the Province had been deferred for a large number of years—I do not now recollect the precise figure.

An extensive and regular acquaintance over practically the whole of my service with German, Italian and French medical literature has shown me that by far the most important research work in psychiatry has issued from the neuro-psychiatric clinics associated with the general hospitals and medical schools at university centres.

The Need for Linking up Psychiatry with General Medicine, and the Method of doing so.

It is essential that early cases of mental and allied disorders be brought within the medical fold, that the same medical advantages as are open to patients in general be available for them; that, in short, provision be made for their treatment in connection with general hospitals, as has long been recognized and practised on the Continent. As on the Continent and in the United States, we should have a department or clinic in neurology and psychiatry (in- and out-patients) as one of the departments of the general hospital. The principal clinic would naturally be that at the hospital with which is associated a medical school, and that constellation of medical talent which the activities of such a school creates, and the director would be on the teaching staff of the school. But each large town with a hospital would have such a clinic, and small towns and outlying areas should have, with their comparatively simple hospital provision, arrangements on the same scale for a few neuro-psychiatric cases.

In an article contributed to the *Lancet* of September 11, 1920, entitled "Hospital Treatment of the Psychoses and Psycho-neuroses," I set out how these maladies could be brought into the comprehensive scheme for the hospital treatment of disease in general, which was described in the *Interim Report of the Consultative Council on Medical and Allied Services* (which body was

under the chairmanship of Lord Dawson). In this report mental disease was merely dealt with, and, in my opinion, quite inadequately, under "Supplementary Services." I set out how full provision could be made for this form of disease under the main scheme.

In this way disorders of health manifesting themselves chiefly, or most dramatically, as disorders of conduct (insanity) would be brought into line, in their early phases, with disorders of health in general, and receive all the benefits of the services of general physicians, surgeons and specialists in all branches of medicine. The chief neuro-psychiatric clinic at the medical school centre would also be utilized for research work (research flowing in broad streams, and not sparsely trickling, as now, from some 12-13 *per cent.* of the rate-supported mental hospitals, and commonly the same ones year by year—*vide* annual reports of the Board of Control), for the tuition of students and post-graduate tuition, for the instruction of nurses; and classes of instruction would be held for students of eugenics, for social service and after-care workers, for jurists (forensic psychiatry), etc. There would be lectures on training and education of children, including defective children, on appropriate occupation of persons with tainted inheritance, etc., and also an ambulatory service of lectures and demonstrations for outlying districts. The services of the clinic would be available for courts of justice in respect of the defective and delinquent classes.

The affiliation of psychiatry with general medicine (through hospital staffs and general practitioners), prevention, cure or alleviation of disease in the early phase, lessening of chronicity of disease (which, of course, leads to the filling of asylums), tuition, research—these are the main aims of the clinics.

The practical teaching of psychiatry to students in England and Wales as at present conducted—and I write as one engaged in such teaching—is absurdly inadequate—nearly as much so as it was over thirty years ago, when I was a student. They can (with the exception of Bethlem Royal Hospital, and now the Maudsley Hospital) only go to the "asylum," where cases such as they will be required to deal with in practice are very rarely to be seen. Compare with this the teaching of students at the University of Utrecht, for example (probably the best neuro-psychiatric clinic in existence is at Utrecht).⁽¹⁾ The same lack of teaching facilities

⁽¹⁾ "The Organization of Medical Education in Psychiatry and Neurology at the Dutch Universities, with Special Reference to the Neuro-Psychiatric Clinic at Utrecht University," an address, by invitation of the President, to the Medico-Psychological Association of Great Britain and Ireland on November 22, 1923, by Dr. C. Winkler, Professor of Psychiatry and Neurology, Utrecht (*Journ. Ment. Sci.*, April, 1924).

results in the appointment of junior medical officers to "asylums," who know very little of mental disorders. This absence of tuition is, of course, very detrimental to our people. As regards nurses, it will be seen that the above plan allows for a free interchange between the various hospital clinics, so that the nurse can receive general and psychiatric training—a great gain to the public.

No Progress, but merely Marking Time.

Apart from the recently opened Maudsley Hospital, we in England and Wales have for long been merely marking time in psychiatry, and no progress is to be expected until general medicine takes cognizance of this branch, which will be feasible when provision on the above lines is made.

In the *British Medical Journal* of September 27, 1924, there appeared an article entitled "Early Mental Disease Treated in a General Hospital: An Analysis of 500 Cases," by Dr. John D. Comrie, Senior Assistant Physician to the Royal Infirmary, Edinburgh. These patients were treated in wards of the Infirmary which are reserved for early mental cases and cases of incidental delirium. Such an arrangement is not the equivalent of a separate neuro-psychiatric department *ad hoc*; it is by no means the ideal. But the results obtained afford a good illustration of the advantage of treating early mental cases on general hospital lines and at a general hospital.

To associate these clinics with existing mental hospitals would, I strongly hold, help to perpetuate the present unfortunate segregation of early and recent mental disorder from disease as a whole, and thereby interfere with the provision of the best available medical attention. This step would infringe the cardinal principle, that the cases to be dealt with and the research to be conducted should be in the hands of the staff of the general hospital, upon which staff would be the director of the clinic as an expert.

Only in this way will the clinic be regarded as an integral part of the hospital, and secure the interest of its staff, and the full confidence of patients.

First Step in Linking Up at Cardiff.

Nearly five years ago I started an out-patient clinic at the Cardiff Royal Infirmary with the approval of my committee and the General Hospital authorities, mainly in the hope and belief that it would serve as an object-lesson in the need for an indoor clinic (to receive not merely "borderland," but certifiable cases, which, however, need not and should not be certified for

reception therein), and so help to prepare the way for the setting-up of such when the hoped-for Mental Treatment Bill should become law. This out-patient clinic deals not only with fresh cases referred to it by medical men, or from other out-patient departments, and from the wards of the Infirmary, but also with patients out on trial from the local mental hospital. Anyone requiring evidence of the need of full facilities for the treatment of early cases of mental disorder and borderland cases could not do better than attend such an out-patient department on a few occasions. Scarcely a week passes but I feel the need for an indoor department.⁽¹⁾ I should say some 65 *per cent.* of the new cases require indoor care, but not that now available under the Lunacy Laws. I am constantly explaining to the relatives of the patient, or the latter, that, as matters now stand, there can be no provision in connection with the Cardiff Infirmary for such cases. They would gladly avail themselves of this form of treatment, but are not willing to go to the mental hospital.

An indoor clinic cannot be created merely by the conversion of ordinary hospital wards, or of a taken-over building, but must be erected for the purpose.

Cases which should have been Dealt With in a Better Way.

Large numbers of cases are annually received into the Cardiff City Mental Hospital which are obviously cases for a psychiatric clinic in association with a general hospital, unconnected with the Lunacy Laws, and for which judicial orders and medical certificates—as called for by these Laws—and handling by the machinery of the Poor Law are wholly unnecessary and undesirable. Under present conditions there is no alternative.

In 1922, out of an average of direct admissions (based on that and the preceding year—being post-War Office occupation years) of 140, I find that 22 left recovered and relieved within three months, 19 within the next three months—or 41 (29 *per cent.*) within six months; like figures for 1923, based on direct admissions, numbering 192, were, respectively, 53, 25 and 78 (40 *per cent.*)

If two pre-War Office occupation years be taken (1912 and 1913), for 1912, out of 170 direct admissions, 51 left recovered and relieved within three months, 26 within the next three months—or 77 (45 *per cent.*) within six months; like figures for 1913, based upon 170 direct admissions, were, respectively, 28, 23 and 51 (30 *per cent.*).

In addition to the above, between the opening of the hospital in June, 1908, and 1914 (both dates inclusive), and from January,

⁽¹⁾ In support of this view, *vide* The First Annual Report of the Medical Superintendent of the Maudsley Hospital.

1921, to the present time—intervening years being excluded as the hospital was in War Office occupation—39 patients were found “not insane now” within a brief period of observation after admission.

My contention is that cases which could recover in this short period of time need not (and would not) have been dealt with under the Lunacy Laws (orders and certificates, and Poor Law transit—these undoubtedly constitute a painful ordeal for the relatives, and a painful memory for them and the patient on recovery; in some instances a grave social disability for the latter), had the psychiatric clinic system been available. Their treatment under the latter system would have been far more rational, enlightened and efficient.

The Mental Treatment Bill, 1923, contained provisions which allowed for the development of early treatment of mental disorders in association with general hospitals, on the above lines. Local authorities (visiting committees of mental hospitals) were therein authorized to make agreements with the managers of hospitals which the Board of Control had approved as institutions for receiving cases of mental disorder.

The medical work at a psychiatric clinic will be on a higher grade than what is possible at a mental hospital, however well found, because—

(a) The staff in proportion to patients is more numerous and can give more time to them, allowing for the consideration that mental hospitals contain mostly chronic cases—these, nevertheless, absorb much time in respect of records and sickness.

(b) The staff at a clinic is assisted by a number of voluntary qualified medical men, who are there for tuition and research. These will not be found at mental hospitals, as the latter contain mostly incurables and end-results of disease, and are mainly remote from medical centres.

(c) The clinic staff will command the services of the best qualified men, and this for obvious reasons.

It is therefore evident that these clinics will be greatly to the benefit of the patients.

I do not deal with the mode of reception and discharge of cases with and without volition into psychiatric clinics, as I adhere to the procedures set out in the above-mentioned Bill, as modified and advocated by the Medico-Psychological Association.

The treatment of cases of early mental disease in association with cases of disease in general will bring about more rational views, alike amongst members of the medical profession and the public, as to the nature of so-called “insanity.”

APPENDIX III.

MEMORANDUM ON

THE CENTRAL AUTHORITY—RECOMMENDATIONS

16-20 (p. 12).

THE LOCAL AUTHORITY—RECOMMENDATIONS

21-23 (p. 13).

BY W. F. MENZIES, B.Sc., M.D. EDIN., F.R.C.P. LOND.,
Medical Superintendent, Stafford County Mental Hospital, Cheddleton, near Leek.

PRELIMINARY.

PUBLIC agitations for the improvement of the conditions of persons confined in institutions for the mentally disordered tend to arise, roughly speaking, at intervals of about forty years, and it is desirable that suggestions towards this end should justify themselves for at least a generation. The Medico-Psychological Association has always held that it has been to the detriment of the mentally ill that so much stress has been laid upon the protection of the person against segregation, and so little upon the need for medical treatment of the sick man. They are satisfied that the principle of *habeas corpus*, however desirable on most grounds, does tend to interfere with treatment designed to promote the patient's recovery, and in making their recommendations to this Commission they have looked around for means of broadening supervision, of taking the educated public more into the confidence of those who have to supervise mental institutions, of bringing the needs of the mentally ill more into line with the requirements of modern scientific medicine, and at the same time of avoiding any undue increase of the public financial burdens in these respects.

THE CENTRAL AUTHORITY.

Those who are acquainted with the evidence given before Lord Shaftesbury's Commission, whose report eventuated in the Lunacy Acts of 1845, will acknowledge that the appointment of a Board of Commissioners in Lunacy (enjoying emoluments which were at that time liberal and thus securing the best type of person), was nothing short of a stroke of genius. We consider that the long procession of far-sighted and talented men who have served as

Commissioners in Lunacy has been, more than any other, the potent instrument which has elevated the treatment of the mentally ill to its present highly humane level, and has made it a model for all nations to follow. The Board may have, until recent years, fallen short in the pursuit of scientific medicine, but this has been due primarily to financial restrictions and the public call for economy; its administrative policy has not been, in our opinion, open to serious criticism, and we are speaking in the names of those who for over seventy years have been brought most intimately into working connection with the Lunacy Commissioners, since 1914 the Board of Control. We believe that no new body could do better, and might, if financial considerations limited the type of person to be appointed, do a great deal worse. It is alleged that certain bodies interested in some small institutions run on eleemosynary lines object to inspection or control by any central authority. But I have not heard it said that such persons object to systematic inspection of the large county and borough mental hospitals, which, being more under direct public control, one would imagine to require it less. Again, others desire a new body under the direct control of the Ministry of Health, a department analogous with, or even subsidiary to, a public health department. But would any such body, by whatsoever designation called, be looked upon by the public ten years hence as differing except in name, from the present Board of Control? As soon as such new body began to show that it was appointed to interpret public opinion at large, and not merely to prevent the certification of a small percentage of antisocial persons it would call down upon its head from dissatisfied cranks much the same criticism as does the present Board of Control. It is important that the central authority, while being answerable to Parliament through a Minister of the Crown, should yet not become a mere department, it should be independent of politics and have a permanent policy. We feel strongly that the Board should be in personal touch with the Minister of Health, but not a department of the Ministry. The problems involved require a life study and no medical officer of health could devote the necessary time to learning the technical detail necessary for the framing and interpretation of the regulations upon which the daily life of our large mental institutions depends. In many of these matters one is not dealing with the rigid details of discipline, but with the intimate thoughts and desires of human souls, who vary in almost every respect from one another and from the normal. The interpretation of the wording of a rule or custom may require modification in a hundred ways to meet the temperaments of various patients or else unnecessary hardship may arise. A simple letter may

require many different answers according to the mental or intellectual state of the writer, yet each alternative must convey an attitude of friendship, interest and personal consideration. These are only given as instances of the need for long experience and technical knowledge on the part of members of the Board. The Medico-Psychological Association is definitely of opinion that psychiatry should be allied to public health, but that the supervision of institutions should continue to be exercised by an experienced autonomous body to which medical officers of all various types of mental institutions should be responsible. Further, the central office of the Board of Control can be carried on efficiently only if a material proportion of its members are past medical superintendents of mental institutions, who have previously devoted many years to a daily consideration of the problems which will have to confront them on the Board. But that position cannot be achieved at present, matters are at a deadlock. No experienced medical superintendent can afford to submit to a reduction of £300 to £400 in his annual income, because he is usually a man with a growing family and has to meet large and increasing expenditure on educational fees. The salary of the medical members in ordinary should be at least £2,000 per annum on present values, and we especially stress the necessity for provision being made for carrying towards pension their years of service under a local authority.

A large part of the time of members of the Board is spent on circuit. If some of this could be saved the work of the central office could probably be accomplished by four medical members. Then the question arises whether four legal members are necessary. If one were always on duty surely all legal questions would receive ample attention. We must therefore provide in some other manner for inspection and visiting of mental institutions of all kinds and of cases in single care. Clearly if this is to be adequately done by members on circuit from the central office a larger number would be required and the expense would be unduly great. There are, from the certified patient's point of view, two chief objects in visits : (a) To satisfy him that his detention is, if unpleasant, at least not illegal ; (b) to see that his treatment is such as will conduce to comfort, and if possible to cure. All such statutory visits should therefore be paid by a medical and a legal visitor, who would have power to report only, not to enforce orders. These visitors need not be full time persons, but could be inspectors appointed by the Minister of Health from among the local legal and medical practitioners in each area, and paid by fee. Probably they ought to visit at least twice a year, and should report on each visit to the Board. There can be no doubt that such inspectors would be

welcomed by patients, and the visits would tend to alleviate the suspicions of a section of the public. They could be approached at any time by letter, could visit and investigate individual cases quite informally, and generally would be the local friends to whom dissatisfied patients could appeal without the formality of writing to the central office. They could arrange small difficulties before they became grievances, they would be of great help to the Board and responsible minister in more important appeals. Their value would depend on absolute dissociation from appointment or control by the local authority.

We next come to a feature of the work of the central authority which has not hitherto received adequate attention, *viz.*, the periodical visiting of institutions and single cases by medical consultants of high eminence in the profession, not necessarily, or even of choice, members of the psychiatric specialty. These should be able to give advice and consultation to committees and their medical officers on the latest scientific trends of general medicine and surgery, in order that institutional medicine may not fall behind. For it must be remembered that most mental hospitals are far removed from towns, that their medical officers are overwhelmed with administrative details, are always giving out intellectual ideas and receiving none in exchange, are far from medical societies and libraries and find great difficulties in obtaining the time and opportunity to keep abreast of modern medicine. For the profession of psychiatry trenches upon many subjects—physiology, comparative biology, palæontological geology, biological chemistry and parasitology, archeology, ethnology, neurology and psychology. No man can master all these subjects, and we always welcome new light which leaders of medical thought are able to throw upon our particular problems. Personally I find that unless I can devote two hours each evening to medical literature I at once begin to fall behind.

It is argued that such consultants can be called in locally and for particular cases, but this would not adequately fulfil the purpose. These may know little about mental institutions or mental disorders. In point of fact they call us in consultation to their own cases outside, and inevitably, if called to consider allied problems of mental disease they would say "If you don't know all about this case who does?" There should, therefore, in my opinion be included on the central Board certain eminent medical men, who should visit each institution at intervals, say once in two years, in order to inquire into the standard of medical treatment. These consultant commissioners need probably not be full time men, lest they too begin to fall behind in professional

knowledge. Far better that they be present or past teachers of the great schools. They might be paid by fee.

These propositions as to the paid members of the central authority may be thus summarized :

(a) Paid Commissioners in ordinary to include at least four medical and two legal members, the former of whom shall have been medical officers of mental hospitals. One should have special experience in Mental Deficiency, another experience in Private Patients mainly. These commissioners may visit institutions once in two years; the legal members need not go on circuit. The medical members to be paid at least £2,000 per annum and to count towards pension the years served under a local authority, which would contribute proportionately towards pension.

(b) Local inspectors to be appointed by the Ministry of Health and be subject to the direction of the Board, one medical and one legal inspector together to visit each patient twice a year and oftener if required in individual cases.

(c) Associate medical commissioners to visit institutions once in two years to advise medical officers as to treatment.

Always provided that none of the above periodic visits need be duplicated. Also provided that inspectors are not to be promoted to be commissioners when vacancies arise.

The Medico-Psychological Association does not consider that the present name "Board of Control" is the best which could be chosen. There are, and have been, other boards of control, and they all suggest legal direction, not medical treatment. We consider that "Board of Mental Health" would fully describe the necessary field of intention without discriminating between control and treatment, would fall in with the designation of the minister concerned and would suggest correlation with the local committee both of public health and of mental health as about to be described.

THE LOCAL AUTHORITY.

At present the management of rate-aided mental institutions by the local authority in most counties is divided between the mental hospitals committee and the mental deficiency committee. Amalgamation has taken place in a few cases, but should be the universal rule. Consequent difficulties arise in the free interchange between the institutions appropriate to each class, and even in such fundamental points as basis of contribution towards superannuation of officials, distinctions exist which make it almost impossible to afford that free interchange of patients which modern medical treatment

requires, especially in the great class of borderline cases who are congenitally affected and suffer at times from superadded psychoses. The boards of guardians have charge of both the mentally ill and the mentally deficient, the education committee of the local authority has control of certain classes of mental defectives. If the recommendations as to clinics set forth by the Medico-Psychological Association become effective the local authorities will be responsible for the maintenance of these, which will bring them into contact with the managers of voluntary hospitals. There are certain other bodies which are interested in the care of the mentally ill and defective, for example, Nursing Associations in counties and county boroughs, health visiting committees, infant welfare centres, the After-care Association and voluntary welfare committees generally, ex-service men's associations, the Ministry of Pensions and Orthopædic Associations.

A clear distinction must be made between committees directly responsible to the ratepayers, such as local authorities and boards of guardians on the one hand, and voluntary or merely rate-aided bodies on the other. There is a precedent in Committees under the Education Acts which secures to the ratepayers control over their institutions. The local authority would, by its amalgamated Mental Hospitals Committee and Mental Deficiency Committee, have a majority of members on the new committee, but one, two or three from all other bodies concerned, including boards of guardians as long as these exist, would be co-opted. The management of all mental cases, whether of illness or deficiency, would be removed from the guardians, who would, however, have representation on the new committee. We suggest that the new committee should be called the Committee of Mental Health. In areas where mental hospital boards exist arrangements would be rather more complicated, but there need be no insuperable difficulties. It is suggested that the mental health committee should be responsible for the entire maintenance of necessitous patients, as well as the fabric and furnishing of all buildings required for their treatment. They would raise the money in the usual way by requisition upon the various authorities, and they would pay rental as arranged to boards of guardians, voluntary hospital authorities and others for the accommodation required. They would manage the various classes of institutions through sub-committees. They would probably require to appoint a Medical Officer of Mental Health who would be responsible to the Committee for the entire organisation. In small local authorities the medical superintendent of the mental hospital might act, but under very large boards, *e.g.* Lancashire, it might be necessary to appoint as many as three

full-time officers. These officers must be of long experience and administrative ability, and should hold rank with, but independent of, the County Medical Officer of Health. In the first instance they might be chosen from the ranks of medical officers of mental or mental deficiency institutions. It might be necessary for the local joint committee of mental health to appoint other officers, but as a rule these would be doing much of the work at present performed by relieving officers and inspectors of voluntary associations, and it might be well in the first instance to make arrangements with these bodies for part-time services.

Our objects in recommending the arrangements described above are not merely for the sake of economy by the avoidance of duplication; they go much further. We believe that they will secure for the patient a much more varied choice of treatment, especially uncertified early treatment, and will effect that co-operation of outside medical skill in respect of bodily disorders present in the mentally ill which the present arrangement of water-tight compartments renders difficult and expensive; that they will, by bringing the treatment of mental illness into line with general medicine, help to break down the suspicion and terror produced in many uneducated minds by the threat of a psychosis, and so will conduce towards making voluntary treatment more popular; and that they will assist in educating the public concerning mental institutions by widening the circle of those who may be called upon to take an interest in their management, and so diminish the repeated accusations of abuses which, except in altogether exceptional cases, exist only in the phantasies of abnormal minds.

When the sum of 4s. per head per week was inserted in the Lunacy Act as the amount to be paid by the Government to Boards of Guardians for each patient sent to an asylum, it would appear that the intention was to pay about 50 *per cent.* of the cost of maintenance. As the average weekly cost is now about 26s. per week the amount of the central grant becomes ridiculously inadequate. The money under our suggested scheme would be paid to the local authority, who are, in fact, already responsible for structural upkeep, and we consider that the 50 *per cent.* share should be restored. But it should not be paid indiscriminately. Some local authorities recognize their duties to the mentally ill, and encourage every reasonable means to promote recovery. To them this financial relief would be paid in full. Other authorities place economy before efficiency; these would get nothing. We would suggest the analogy of the Education Acts or road grants, payments by results, or by the comparative importance of the heads of expenditure to be incurred. There is no other body than the Board

of Mental Health who would know whether or not the money was being properly spent and whether an adequate return in recoveries or increased comforts to patients might be expected. We would recommend that payments should be made only on the certificate of the Board. They know that often expenditure upon scientific research or special teaching or a clinic might be a better investment than mere extra amounts spent upon furnishing and building. They alone could take all the facts of the case into consideration and appraise to each its proper value.

There is considerable dubiety among mental hospital committees as to what expenditure is at present legal, and certain desirable objects cannot be attained unless the judicature specifically rules them to be legal. We refer to scientific research, more particularly to grants towards this object made to outside authorities, such as combined boards who may conduct a central research laboratory. There are also matters like payment to outside teachers and examiners for instruction in special courses of mental medicine and nursing, diploma courses within and without the local authority's area, and payments to mental hospital patients for work done in the institution. All these items are probably at present legal, or at least they have not been surcharged. But in the absence of judicial ruling some local authorities will not take the risk. Another very necessary expenditure is at present probably illegal, this is any payment by a mental hospital committee of grants in aid of after-care schemes in the case of patients who have been finally discharged. At present the financial liability of a committee ceases when the name of a patient is removed from their books, although it is, in our opinion, a necessary link in the scale of treatment that it should be able to recognize officially, by monetary grants or otherwise, the work which has been carried on under considerable difficulties since 1886 by the Mental After-Care Association. Large numbers of men and women, many of them poor, some friendless, are discharged from institutions every year, yet who are capable of earning their own living with a modicum of assistance, such as temporary boarding out in homes, convalescent or otherwise, a short period of change of air or scene, provision of suitable employment, money grants towards seeking work or obtaining clothing or tools. This work is at present legally performed to some extent by boards of guardians, but only at the cost of the stigma of pauperism.

We would go so far as to recommend that, subject to] the permission of the Board of Mental Health, expenditure upon the above subjects should be not only permissive but statutory.

APPENDIX IV.

PRÉCIS OF EVIDENCE.

ON

PSYCHIATRY, LEGAL AND ADMINISTRATIVE, IN SOME
EUROPEAN COUNTRIES AND IN AMERICA.

By Lt.-Col. J. R. LORD, C.B.E., M.B.Edin.,

Co-Editor of the *Journal of Mental Science*.

SOME EUROPEAN STATES.

**FACILITIES FOR EARLY TREATMENT OF OCCURRING
MENTAL DISORDER.**

France.—There is no provision at present under the French law for a mental patient, on his own request and apart from his relatives and friends, to receive treatment in a mental hospital, but in the new Lunacy Bill now before the French Parliament this is being allowed for and will be known as "spontaneous internment." A mental patient desiring treatment or not unwilling to be treated can only be received in a mental institution by the action of his relatives or friends, who effect what is known as "voluntary internment" (*un placement volontaire*). This method of placing mental patients under care is applicable whether the patient is willing or not, and will be described later. Many uncertified cases are treated in special departments attached to the general hospitals.

Dr. Henri Colin (*vide Journ. Ment. Sci.*, October, 1921, p. 461) says :

"The treatment of the psychopathies is at the present time imperfect. It only concerns itself with conditions of confirmed insanity, which has reached a stage when the chances of cure are restricted. The irksome formalities, and in a certain measure vexations, of certification keep the milder cases away. The asylum in its present form is expedient only for the dangerous and incurable insane."

Referring to treatment of voluntary or uncertified patients he says :

"In France the law of 1838 is silent on this point. It did not foresee clinics for uncertified patients, any more than it foresaw family colonies. Now family colonies exist in France, and prosper. It will be the same with uncertified clinics ; and already at Fleury-les-Aubrays, near Orléans, services exist where the patients can enter voluntarily. Thus nothing prevents the generalization of the system."

The following reply was sent by the Société Clinique de Médecine Mentale to a letter from the Minister of Health on the subject of the revision of the Lunacy Law of 1838 :

"The expression 'mental affection,' the meaning of which is wider and less precise than that of the expression 'mental alienation,' denotes mental alienation, and also other morbid states characterized by mental troubles. Those persons suffering from mental affections ought to be regarded as alienated—

"(1) Who compromise public order.

"(2) Who are, or may become, dangerous to themselves or others.

"(3) Who, incapable of properly managing themselves, or of supplying their needs, do not receive from their immediate *entourage* or from public assistance the supervision and care that their condition renders absolutely necessary.

"Thus, only the alienated, to the exclusion of other patients afflicted with mental disorder, ought to be the object of legal measures restrictive of individual liberty.

"The substitution of the expression mental affection for the expression mental alienation might have the consequence of improperly extending these measures. There is thus cause for avoiding such a substitution.

"Now patients suffering from mental affections in general, and not merely the alienated, deserve to be treated, and the law could extend the benefit of personal or voluntary placing to all mental affections.

"As far as this refers to the poorer classes, and if one excludes some hospital services of the large towns, the insane asylums are actually the only establishments for the treatment of mental affections in general, and there is nothing to hinder those persons suffering from mental affections, but not alienated, from being treated in the asylum, if they desire it, if they enter freely, if their stay in the establishment is medically justified, and if they leave freely, though not cured, upon the single condition that they are not dangerous. The opposition of the responsible physician to the discharge of a voluntary patient should always become the object of an immediate and careful inquiry analogous to that occurring on admission."

In France the Lunacy Law of 1838 has remained unchanged except for the Emergency Law of March 21, 1919, dealing with mentally afflicted soldiers. A projected revision of the Lunacy Law was interrupted by the outbreak of war. In France, as in this country, there is a volume of opinion, both medical and otherwise, in favour of voluntary treatment of early cases of mental disorder uncertified, whether certifiable or not, in the wards of infirmaries (dispensaries), general hospitals, asylums, at special clinics (with laboratories), and by attendance at the out-patient departments of dispensaries and hospitals.

In France, before a person can be sequestered as insane his insanity has to be proved, but Art. 510 of the Code Napoleon permits the "family council" to take the necessary action.

The Law of 1838, like our existing Lunacy Laws, contemplates the treatment of all psychopathic cases under a form of certification. It has failed, however, in France as far as early treatment is concerned, and it seems likely that this will be effectively provided for in the revised law now before Parliament.

Italy.—Voluntary admissions to psychiatric hospitals and provincial asylums are permitted. Such admissions are immediately notified by the Director of the hospital to the Attorney of the King (*Il Procuratore del Re*).

Art. 53 of the Regulations in the Law relating to Asylums and the Insane reads :

“When individuals of full age, being aware of their own condition of partial mental aberration, request to be received in asylums, the manager, in case of absolute urgency, and on his own responsibility, may receive them provisionally under observation, giving advice thereof within twenty-four hours to the Attorney of the King, subject to reporting to him, by order of the Tribunal, as in ordinary cases, and to the Police Authorities. The usual procedure follows.

Professor Leonardo Bianchi, a member of the Italian Senate, said on June 9, 1922 :

“Our law has been inspired by the desire for the public safety, and not from the point of view of the hospitals. In obedience to our law, only those persons are admitted who are judged to be dangerous to themselves and to others.”

“There are a large number of patients whose malady springs up acutely, for instance, those who are ill from intoxication or infection, typhus, malaria, or acute alcoholism, etc., which, if they were looked after at the proper time, might be cured very rapidly. Now as for the admission of these into the lunatic asylum, it is necessary to carry through the procedure either with the Police Authorities or with the Tribunal; it is quite natural that many families refuse to send their patients to asylums for the reason that the Police Authorities and the Tribunal imprint an indelible mark on the honour of the family (even if this be only prejudice), and consequently, these patients remain in their own houses, either not cared for or badly cared for.

“For this reason the malady often passes into a chronic state, and it is only then that the respective patients are admitted in the lunatic asylum, but it is perhaps too late for a rational treatment; for this reason it is necessary to make different arrangements for the admittance of these patients.”

Spain.—Voluntary admissions take place, but the law regarding certification is afterwards carried out on the initiative of the patient.

Holland.—Patients, on application to the Tribunal can be received voluntarily at the asylums. They can be received without authorization at the official psychiatric clinics.

Psychiatric clinics may receive certified cases without restrictions, but general hospitals are only allowed to accommodate two certified cases.

Germany.—In Germany the care of mental patients is not regulated by a lunacy law common to the Empire. Each Federal State is governed in this respect by its own laws and by its Government decrees. There is no special lunacy law in Prussia—only Government decrees (a matter of ministerial administration).

The Baden Lunacy Law of June 25, 1910, is said to be well

thought out and the most enlightened. Another recent lunacy law in Germany is that of Saxony dated 1912.

There appears to be ample provision for voluntary admission to all mental institutions either by the person afflicted or on his behalf by his friends. As regards asylums, the applicant for admission must produce papers of identification and guarantee payment of the cost of maintenance.

Austria.—Voluntary admissions are permitted both to psychiatric clinics and asylums. The patient writes a declaration in the presence of two witnesses and the medical officer of the institution that he agrees to stay.

CERTIFICATION AND ADMISSION TO MENTAL INSTITUTIONS.

France.—In accordance with the Law of 1838, there are two methods of placing the mentally afflicted under care in public and private asylums :

(a) Voluntary internment (not ordered by the State). To effect this it is necessary to produce the following documents with the patient :

(1) The demand for admission containing the name, occupation, age and addresses both of the patient and the person effecting the internment.

(2) A medical certificate (or several) giving mental state of patient and the reasons for internment. This certificate must not be signed by a medical officer attached to the receiving asylum, nor by one who is a relative or connection of the heads of the establishment or of the person effecting the internment.

(b) Official internment is by order of the Prefect of the Department (in Paris, the Prefect of Police), and applies to any person whose mental state compromises public order or the safety of individuals. In urgent cases mayors of communes can act and refer the same to the Prefect within 24 hours.

Judicial authority only intervenes when an insane person has broken the law.

All admissions are notified to the Prefect within 24 hours of admission, with a report from the medical officer of the asylum.

Italy.—The internment of an insane person in an asylum takes place as a rule in two stages : (1) Provisional ; (2) confirmatory.

A relative of the person to be interned, or the guardian, acting guardian or trustee, obtains a detailed medical certificate from the doctor in charge of the case (who must not be a relative, even in

the fourth degree, of the patient or of the manager or the owner of the asylum, or nursing home selected, nor may he belong to such asylum or nursing home). He then proceeds to the Magistrate, or, in communes which have not a district court, to the Mayor, with four witnesses, who are not members of the family of the patient and are acquainted with the patient, if possible residing in the neighbourhood of the latter, who have the legal position and are persons of good repute and worthy of confidence. The latter must confirm the statements written by the doctor, and the circumstances which lead to conclude the state of mental aberration of the individual. The "act of notoriety" arises in this way.

Then, on the basis of the medical certificate and the "act of notoriety," the Magistrate issues a "decree of provisional retention" in an asylum, which authorizes the Manager to receive the patient.

The Manager immediately advises the Attorney of the King of the internment effected, and within 15 days (if the diagnosis cannot be effected within this period, a further 15 days may be asked for and obtained, but not a day longer) it must be declared to the Attorney of the King that the internment of the patient in the asylum is considered absolutely necessary (dangerous to himself or others). Then the Tribunal issues and sends to the Manager a "decree of definite retention."

Spain.—The internment is in two stages: (1) Provisional; (2) confirmatory.

Two medical certificates are required for the former and the provisional order is made by the Mayor. Other formalities prior to admission are the examination of the patient by the Medical Officer of Health (Subdelegado). The Subdelegado seldom visits the patient, but always receives a fee for his signature and seal. Municipal practices vary, but the Mayor, before he signs the order, usually orders further investigations by two municipal physicians, whose reports are confidential.

After three months the order is confirmed if necessary by the Judicial Authorities after inquiry and reports from the Medical Director of the asylum and the Medical Adviser to the Court of Justice. The Judicial Authority means a judge sitting as in a civil suit. The application is first heard by a local magistrate, and notified in the Official Journal of the Province 30 days beforehand.

Holland.—The internment is in two stages: (1) Provisional; (2) confirmatory.

The internment in an asylum is effected by the members of the family and an order from a cantonal magistrate.

One medical certificate must be submitted giving the mental

state of the patient and the need for internment. The order is effective for six weeks.

At the end of this time the Tribunal can extend the order to one year, which is renewable annually.

Germany.—(a) Public clinics: The psychiatric and neurological clinics admit quite freely the mentally afflicted or people suspected of such, and no medical certificate or judicial order is required. As a rule a medical report accompanies the case. They also admit without formalities persons ordered there for observation by the Civil and Criminal Courts and the Police Authorities for several reasons.

(b) Public asylums, like the clinics, admit without formalities police and court cases.

In the case of a patient for whom internment is necessary the following documents must be produced: (a) A police certificate as to the patient's origin, family and circumstances; (b) a guarantee or statement as to the payment of the cost of maintenance; (c) a written declaration of consent by the legal representative, or by the "Competent Authority"; (d) one detailed medical certificate. The application as a rule is addressed to the "Provincial Captaincy," which is the head of the Provincial administration. The following persons are entitled to make such applications: (a) Poor Law Authorities; (b) the nearest relative or the legal representative (guardian or trustee of the patient). These provisions are not absolutely uniform in all states or provinces. There is no judicial authority required.

The following extracts from the Bavarian Codes of Penal and Civil Procedure and Police Penal Codes are interesting as illustrative of German lunacy procedure in certain cases:

Section 81 of the Code of Penal Procedure.

For the preparation of an opinion on the mental condition of the accused party, the Court, on the application of an expert, after hearing the defending Counsel, may order that the accused person be conveyed to a public lunatic asylum, and that he be observed there.

A defending Counsel must be appointed for an accused person who has not one. Immediate objection can be lodged against this decision. (The effect of this is to defer its action.)

The internment in the institute may not exceed the period of six weeks.

Section 656 of the Code of Civil Procedure.

With the consent of the applicant, the Court may order that the person interdicted be brought for a period not exceeding six weeks into a curative establishment, if this appears to be desirable, according to medical opinion, in order to ascertain his mental condition, and if this can be carried out without detriment to the condition of health of the person to be interdicted. (Before the decision the persons referred to in Section 646 should be heard as far as practicable.)

Against the decision by which the internment is ordered, the person to be interdicted, the State Prosecutor, and within the term granted to the person to

be interdicted, the other persons mentioned in Section 646 have the right to lodge an opposition immediately.

Article 80 of the Bavarian Police Penal Code.

Anyone who, to the danger of persons or property, or to the danger of public morality, allows idiots or mental patients whose supervision is incumbent on him to go about freely in the streets or in public places, will be punished by a money fine up to 15 thalers (now up to 45 marks).

If such a person has made an attack against persons or property belonging to others, or has acted contrary to public morality, and either no penal proceedings have even been instituted because the accused person is not responsible for his actions, or a recognition of this has caused the penal procedure to be stopped, or if the danger to the community of such a person has been ascertained in some other way, the Police Authorities are entitled, on the basis of an opinion of the district medical authority, to order the internment of such a person in a lunatic asylum or sufficient supervision to be exercised over him in some other way.

Article 81(d) of the Bavarian Police Penal Code.

Anyone who allows children, sick persons, defective or idiots or other such-like helpless persons belonging or entrusted to him to be neglected in regard to protection, supervision, care or medical assistance, will be punished by a money fine up to 30 thalers (now up to 90 marks), or by imprisonment up to four weeks.

In the penal judgment it may be decided that the Police Authorities are empowered to care in some other way for the accommodation of the persons in question at the cost of those whose duty it is to do so. The power to do this, when it is a question of a measure for which an Order of the Chancery Court is required, is dependent on the granting of the said Order.

Austria.—A distinction is made as to whether the person to be dealt with is suspected of mental disorder or is a case of undoubted psychosis.

In the former case the internment is in a clinic (observation station) and not in a public asylum. It is effected on the certificate of the Official Medical Officer (police physician, district physician, etc.). The clinic ascertains the patient's mental state and, if normal, discharges him. If found to be suffering from mental disorder his transfer to the nearest asylum is ordered.

For admission to a public asylum one certificate is necessary as to the mental state of the patient, which must also state that the patient is dangerous as regards himself and his environment. As a rule this certificate is issued by the District Medical Officer except in "urgency cases," when any practitioner can certify, in which case the Director of the asylum must send a report within 24 hours to the Police Commissariat or District Captaincy. Examination by the District Medical Officer follows.

Every case admitted to a public asylum is notified to the Provincial Courts (Civil), following which the patient is examined medically (by one judge, one or two court psychiatrists and one Secretary) to decide whether the internment is admissible. A subsequent examination by the Provincial Court is held to settle any question of guardianship.

URGENCY CASES (ADDITIONAL NOTES).

France.—The medical certificate can be dispensed with.

Italy.—In cases of urgency (or in order to avoid the slowness of the ordinary procedure with the magistrate), the relative of the insane person to be interned, furnished with the medical certificate, can obtain a decree of provisional retention from the Police Authorities. The subsequent official formalities are the same as in ordinary cases.

Spain.—The Mayor or Magistrate or Governor of the Province may decide on immediate internment, but the ordinary procedure must follow.

Holland.—Can be dealt with by the Mayor of the Municipality instead of the Cantonal Magistrate. The case can be received in any large hospital.

Germany.—Urgent internment can be effected without medical certificate. The Medical Officer of the asylum certifies afterwards.

Austria.—Certificate of any medical practitioner is sufficient to effect internment. The Police Authorities are notified within 24 hours.

SPECIAL PROVISIONS FOR PAYING-PATIENTS.

France.—There are private hospitals which are subject to the same regulations as the public asylums, except that the Prefect immediately orders an examination by a psychiatric inspector. There are also "pensionnats" attached to certain public asylums. Certification does not differ.

Italy.—All private mental institutions are subject to the same laws as the public asylums. Certification does not differ. The same applies to patients treated at home or in nursing homes.

Spain.—The same as Italy in this respect.

Holland.—There is no difference in the law as regards paying and non-paying patients. There are sanatoria in which paying patients place themselves for treatment as nerve patients. If necessary they are certified and sent to the mental division of the institution.

Germany.—There are many private mental institutions, homes, etc., and private mental nursing agencies.

Paying patients in limited numbers can be received in public mental hospitals. There may be several classes of paying patients. In Berlin there is only one class of mental hospital, which includes those who pay and those who do not.

The medical certificate presented on admission must be made out by the District Medical Officer or the Director of a public mental hospital or clinic. If the patient is already under guardianship,

then if the admission is authorized by the guardian, the certificate of any medical practitioner suffices.

Urgent admissions on the certificate of any medical man are allowed, but the District Medical Officer must then be notified within 24 hours, who examines the patient within 3 days after the receipt of the notice.

Voluntary admission to private institutions is permitted on the production of the following documents :

(a) A medical certificate that the patient understands all about the admission and that he is a suitable case for care and treatment.

(b) The written declaration of the patient that he wishes to enter the hospital.

Austria.—There are some private sanatoria for mental cases and “paying departments” in the mental hospitals.

The law regarding admission is the same as in the case of public mental hospitals.

DISCHARGE OF PATIENTS.

France :

Recovered.—By the asylum in the case of “voluntary internment.”

By the Prefect in the case of “official internment.”

By the Attorney of the Republic in the case of minors of a person “interdicted.”

Not recovered.—If interned “voluntarily” by the relatives or guardian or other person who has effected the internment unless the Medical Officer deems the patient to be dangerous. Discharge is then suspended and the Prefect informed, who converts the “voluntary internment” into an “official internment.”

Italy :

Recovered.—By the psychiatric hospital to his family.

If the family do not remove him, then the President of the Tribunal or the Police Authorities or the Mayor of the Commune at the place of origin of the patient is notified to effect the removal.

Recovered.—By the asylum to his family.

If the family do not remove him, then the Police Authorities effect removal.

Not recovered.—The patient who is improved but not recovered, however, may be discharged “under the legal responsibility of the Manager” (who may secure himself by

requiring a signature of guarantee on the part of the relative who takes charge of the patient. This signature has, however, only a moral and not a legal value).

Advice of "discharge recovered" is immediately given to the Police Authorities and to the Attorney of the King, who must then obtain from the Tribunal a "decree of definitive discharge," which is, however, usually issued a long time after the patient comes out.

Advice of "discharge improved" is given to the Attorney of the King, to the Police Authorities, and to the Mayor of the Commune to which the patient belongs. During the trial period of the patient the family must send, through the Mayor, a medical certificate respecting the state of the said patient to the manager every four months.

When the manager declares an improved patient on trial has recovered, he gives advice of same to the Attorney of the King in order that he may obtain the "decree of definitive discharge" mentioned above.

If, during the trial period, it is found to be necessary for the patient to return to the asylum, he is readmitted on production of a simple medical certificate. The manager must at once inform the Attorney of the King, sending him a certified copy of this certificate.

Professor Leonardo Bianchi, in the speech already quoted, said :

"Now I think we ought to be interested in the insane person on his own account ; because he is ill, we ought to conceive of the institutions for mental diseases as hospital institutions, and not only from the point of view of public safety, for the so-called persons who are dangerous to themselves and to others. Moreover, the law is contradicted by the fact in that all those who are sent to and received by a lunatic asylum when they are dangerous, if they are not perfectly cured, remain as inmates of the lunatic asylum even when they have become quiet. In this the law contradicts itself, because it is vain to prescribe internment only for dangerous lunatics when from the technical point of view it is not possible to judge as to whether they have become inoffensive, and when there is no means of obliging the families and other public institutions to take over those who were interned on account of a psychiatric episode which rendered them temporarily dangerous. And there is another reason of contradiction between the provisions of the law and the practical fact. As the judging of the inoffensiveness is not absolute, but relative, as regards insane persons who are not perfectly cured, there is no Director, however generous he may be, cultivated and of strong mind, who would expose himself to the rigours of the law by releasing alienated persons whom he judges to be no longer dangerous, who could be useful members of society, especially if they are farm labourers, and assisted by their families, because the law in the first paragraph of Art. 3 attributes to the Director of the lunatic asylum the responsibility for the acts which the discharged lunatic may at any time commit. In fact, in this it is stated : The Director may discharge a patient who is no longer in a condition of being dangerous, but only on his own responsibility.

"This factor, restrictive as to the discharge of insane persons from the psychiatric hospital, must be suppressed. These institutions must be allowed to breathe; the discharge of the patient should be left to the judgment of the Sanitary Authorities, who know, moreover, the surroundings to which the lunatic will or will not be entrusted."

Spain :

Recovered and not recovered.—By the asylum and by the relatives, the Governor of the Province being notified.

Holland :

Recovered.—By the clinics, hospitals and asylums.

Not recovered.—By the clinics, hospitals and asylums, on trial. A special provision in the law enacts that an insane patient, though not recovered, may be discharged, if the cost of his maintenance is not forthcoming.

Germany :

Recovered.—By the clinics and asylums.

Not recovered.—(a) Patients can be discharged on trial.

(b) On the undertaking of his relatives to be responsible for him and all the consequences following his discharge. Regarding dangerous cases, on such an application being made, the Police Authorities are informed, and if they do not act within 3 weeks the patient must be allowed to go. If the Police decide against the discharge the patient remains in hospital.

The patient must be discharged, whether recovered or not—

(a) if "Guardianship" has been refused by a Court;

(b) if the legal representative demands discharge and the police sanction it.

The police are informed when it is proposed to discharge or allow out on trial cases admitted from prison or from the Courts.

As regards private institutions, a patient not a minor or under guardianship, on applying for his discharge in writing, the head of the institution, if he does not comply with the request, must transmit the same with a report to the Public Prosecutor.

Austria :

Recovered.—By the asylum. In "guardianship" cases the discharge must be notified to the "Competent Court."

Not recovered.—By the asylum to the care of relatives and on a suitable undertaking when necessary. In the latter case the Police Authorities, Political Authorities, District Captaincy and others must investigate the question whether the person giving the undertaking can carry it out and need to approve of the discharge. Harmless chronics can be sent to infirmaries and colonies.

STATE SUPERVISION OF MENTAL HOSPITALS.

France.—Supervision is exercised by the Minister of the Interior through the Prefect, the Mayor, the Attorney of the Republic, the

Magistrates who visit the hospitals. The patients are regularly examined by psychiatric inspectors commissioned by the Prefect.

Italy.—Supervision is exercised by a Provincial Commission formed by the Prefect, the Provincial Medical Officer and a psychiatrist. The Commission visits the asylums once every year.

Professor Leonardo Bianchi remarks :

“The same thing has happened with the inspections of lunatic asylums ; the medical man and Director of a lunatic asylum become for some time members of the Commission of Vigilance of other lunatic asylums ; thus they are inspectors, but, in their turn, they must suffer inspection as the other institutions. It is needless to examine the objections as to this. On the other hand it is known by everybody that the inspections are made once a year ; it is known that the Prefecture is preparing the inspections, and it is understood that everything goes well. But the character of the inspections is extraordinarily delicate as regards lunatic asylums, because it is a question not only of making sure whether the registers required by the regulations exist and whether things are kept in hygienic conditions, and the clinical records are kept, but to make sure that there are not kept in lunatic asylums persons who ought not to be retained there ; the law is specially preoccupied with respect to the liberty of the citizens.”

Spain.—Supervision is nominally by the Minister of the Interior, who delegates, through the Governor of the Province, the Provincial Sanitary Inspector to pay visits of inspection.

Holland.—The State provides two Inspectors of Lunacy, who visit the asylums whenever they wish.

Germany.—Supervision is exercised by the Chief President of the Federal State, and the asylums are inspected annually by a visiting Commission composed of a medical councillor, an experienced mental specialist, and, in some cases, a state medical officer. In some States these inspections have ceased during the past year or so.

Austria.—Psychiatric clinics are subject to the Minister of Education. There is only Provincial control. There are no State inspectors.

PSYCHIATRIC CLINICS AND SIMILAR PROVISIONS.

France.—In the cities and large towns the ordinary hospitals have wards, where patients suffering from mental disorders and who are not certifiable are treated.

Italy.—There are municipal psychiatric hospitals, and some clinics are separate institutions maintained by the State. Provision is inadequate for recent cases, because only dangerous and chronic patients can be received in the provincial asylums. It is proposed that some twelve to fourteen neurological clinics should take mental cases.

Spain.—General hospitals only have psychiatric clinics attached,

but not all of them. Some of their regulations exclude mental cases.

Holland.—The clinic system is well-developed and encouraged. Psychiatric clinics are connected with universities and other medical clinics. Asylums also have attached "approved institutions" for uncertified cases. The doctors of the asylum are prohibited from certifying these cases if the necessity for such arises.

Germany.—Clinics are only in connection with the universities. In certain large general hospitals mental patients are temporarily admitted, but no prolonged treatment takes place. Patients who do not recover early are transferred to the asylums.

Austria.—Psychiatric clinics only exist in connection with three universities. Some of the large general hospitals receive mental cases temporarily, but only to pass them on to the clinics or asylums.

AFTER-CARE.

France.—Patients who do useful work while under care in the asylums receive remuneration. Part of this money is retained by the asylum and handed to the patient on discharge. Necessitous patients may, on discharge, receive assistance to help them while seeking employment.

There appears to be no "after-care" as we know it in England.

Italy.—There exists in connection with some asylums a society for the assistance of the insane poor, which, in addition to grants of money, has recently been providing the means for re-adapting the insane for outside life and employment. But these funds depend on private contributions, and are independent of the administration of the asylums. The Manager of the Asylum, however, is generally President of the Society.

Spain.—There is no "after-care" and no grant to necessitous patients on discharge.

Holland.—There are no grants from official funds to indigent patients on discharge. There are private funds, however, which help in this direction.

Germany.—Slight pecuniary assistance is given from public and private funds to assist patients on discharge. Patients may also be discharged to "Welfare Centres" in some cities. In some provinces there are "Associations for Aiding Discharged Mental Patients."

Austria.—No grants are made from public funds to poor patients on discharge. Private charities, such as that in Vienna known as the "Association for the Support of Persons Discharged from Curative Establishments," may assist some cases.

AMERICA.

The lunacy laws in the various States of America differ so much that it is difficult to state any procedure in lunacy matters common to America. There is no Federal lunacy law, and the same remark applies to lunacy administration.

VOLUNTARY ADMISSIONS.

In 29 States voluntary admissions are permitted to the State hospitals. The patient must make the application himself and understand what he is doing, and must give in writing 3 to 10 days' notice of his desire to leave.

CERTIFICATION AND ADMISSION TO MENTAL INSTITUTIONS.

In 12 States "urgency cases" are cared for in jails.

There is some kind of emergency care pending examination and commitment in 16 States; also power to receive and detain for a limited time cases for treatment. The Massachusetts State Hospitals dealt with 1,929 of such cases during 1920. In many cities the Police and Health Authorities have great power of arrest and temporary commitment of the insane.

Certification, internment or commitment to a State or private hospital often involves a hearing before a jury. The application may be made by a relative or some responsible person, a trustee, Poor Law Authorities, etc. In Florida five reputable citizens must sign the petition. In most cases a summons is served on the patient who may or may not be present during the hearing, but such attendance is usually required. In some States the hearing is before a commission of two physicians, either sitting with the judge or reporting their findings to him. In other States there are special commissioners appointed to hear petitions. In one State two physicians examine the patient in the Court, and if they disagree the Judge decides.

These facts are sufficient to illustrate the different lunacy practices which obtain in America.

Broadly speaking, however, the internment consists of the following steps:

- (a) The presentation of a petition before a Court, Local Authorities or Board of Commissioners. Petition is sworn to.
- (b) A medical certificate as to the patient's mental state.
- (c) A notice of the petition to the patient.
- (d) The hearing of evidence, at which the patient is present, unless there are special reasons against it. The hearing may be before a jury or a commission.

- (e) The verdict.
- (f) Judgment on the verdict, *i.e.*, commitment to a State hospital, private hospital, or to guardianship.
- (g) The internment, or committal to care.

STATE OF NEW YORK.

The State of New York, as regards many of its social problems is comparable with greater London, and a comparison of the lunacy statistics relating to each reveals much the same incidence and type of mental disorder and because of these facts and of the fact that both places are populated by English-speaking races largely of Anglo-Saxon origin, the Lunacy Administration of New York State would appear to be of more practical interest to the Royal Commission than that relating to an entirely foreign country.

The State Hospitals Press of New York have recently published *The Insanity Law*, revised to July 1, 1924, from which the following facts are gleaned :

State Hospital Commission.

The administration of the insanity law as regards the care and treatment of insane persons is in the hands of the State Hospital Commission (referred to afterwards as the Commission), which is appointed by the State Governor by and with the advice and consent of the Senate. There are three Commissioners, as follows : one a reputable physician with at least ten years' experience of medical practice, which is to include five years' actual experience in the care and treatment of the insane in an institution for the insane ; one a legal practitioner of not less than ten years' standing ; one a reputable citizen. The medical commissioner receives an inclusive annual salary of 8,700 dollars and the other commissioners 6,200 dollars. The post of medical commissioner is tenable only during good behaviour, the others for a period of six years.

The Commission may appoint a medical inspector and one or more deputy medical inspectors and also administrative experts.

The chief duty of the Commission is the execution of the laws relating to the custody, care, and treatment of the insane (but not including feeble-minded persons and epileptics as such and idiots). Other duties and powers are the visitation, examination, inspection and investigation of mental institutions of every kind, public or private, and other places authorized by the law for the care of the insane (the State and private hospitals are visited at least twice a year) ; the adoption of rules and regulations for institutions, etc. ; the visitation of any place suspected of treating insane persons

contrary to the law ; the meeting once a year of the Managers of State Hospitals in conference ; the creation of lunacy administrative areas, the provision of State hospitals, and the dealing with all matters of accommodation ; the keeping of records of patients and the register of medical examiners, etc.

Generally speaking the Commission combines in itself the essential duties in this country of the local authority in relation to lunacy matters and of the Board of Control, and also those of the Minister of Health. It is answerable for its actions to the Governor and the legislature.

Managers of State Hospitals.

The Managers of State Hospitals are appointed by the Governor, by and with the advice and consent of the Senate, seven for each hospital, two of whom must be women, and all for a term of seven years. Members of State Assemblies are barred. Managers are to reside in the hospital district and are unpaid, but necessary travelling and other expenses are allowed.

They have the direction and control of the property and internal affairs of the hospital subject to the statutory powers of the Commission, except as otherwise provided by law. They maintain an effective inspection of the hospital, also hear and determine all charges and complaints against the Superintendent and other officers and employees of the hospital and report their findings to the Commission.

At monthly meetings the Superintendent reports on matters which are in this country usually brought to the notice of the Hospital Committees.

They have not the powers of the local authorities in England and Wales, and appear to be merely local representatives of the Commission and thus of the State.

Superintendent of a State Hospital.

He is appointed by the Commission subject to the approval of the Managers of the Hospital. He can be suspended by the Managers pending inquiries, and dismissed after inquiry with the approval of the Commission.

The Commission cannot dismiss a Superintendent, but may prefer charges against him to the Managers.

The Superintendent has to be a medical practitioner and to have had at least five years' experience in a mental institution.

His duties are similar to those which fall to a provincial medical superintendent in this country, except that he appoints and can dismiss all officers and employees of every grade and is entirely

responsible for discipline. He discharges patients. He is sometimes treasurer of the hospital and he is always responsible for accounts and business matters. He has to hold at least two clinical staff conferences a week. The State Hospitals Superintendents have to meet in conference four times a year.

He has to establish, staff, and maintain out-patient departments and mental clinics within the hospital district.

Private Mental Institutions.

All private institutions for the care of the insane are licensed by the State, and the insanity law in most respects is equally applicable to both State and private institutions.

Commitment, Custody and Discharge of Patients.

The Order is by a Judge of a Court of Record of a county or city or a Judge of the Supreme Court of the district. Certificates of lunacy, which must show that the person is insane, are by two qualified medical examiners registered at the office of the State Commission and must be dated not more than ten days before the Order. Petitions are by relatives, officers of charitable institutions, overseers of the poor, etc.

At the hearing the presence of the patient can be dispensed with if such would be detrimental to his welfare.

Commitment, if patient be harmless, can be to the care of a relative or a *Committee of person*.

Medical examiners in lunacy are reputable physicians of at least three years' practical experience of their profession. They are given a certificate by a Judge of a Court of Record upon showing such qualifications as are prescribed by the Commission.

The Order must be acted upon within ten days.

The Superintendent may refuse to admit if the documents are not in order, or if he concludes that the person is not insane. In the latter case (if admitted) the Commission can discharge.

Cases requiring treatment or very dangerous cases can be admitted by the Superintendent on a certificate by two medical examiners pending an order being made.

The Superintendent of a State hospital on the request of a health officer can receive without order for a period not exceeding ten days a mental patient who needs immediate care. If not a suitable case the health officer must remove, and if not removed such a case becomes chargeable to his own district. Unless the patient signs a request to remain as a voluntary patient the health officer must take steps to have him examined. If found insane, an order is obtained, if found sane he must be removed within ten days.

The Superintendent or physician in charge of any hospital or institution for the insane, except the Matteawan and Dannemore State Hospitals, may receive and retain a mental patient upon a petition by a relative, overseer of the poor, etc., on one certificate for ten days, but if the patient or a relative of the patient claim his discharge he cannot be detained for more than ten days except by order from a Judge of a Court of Record on the submission of a certificate of insanity by the medical superintendent or chief physician. By a similar section, at any mental institution a dangerous lunatic can be received on production of a petition and two certificates pending an order being made.

Duties of Local Officers in regard to their Insane.

County Superintendents of the poor, overseers of the poor, health officers and other city town or county authorities having duties to perform relating to the poor, except in the City of New York and in the County of Albany, are to notify the health officer of any poor or indigent insane or apparently insane person, and he is to see that proceedings are taken for the determination of his mental state and for his commitment to a State hospital. He is also to provide for his proper care, treatment and nursing in the meantime.

In the City of New York and County of Albany certain hospital authorities and commissioners of public welfare or charities are allotted similar duties in regard to the poor and indigent insane. They are also to take proceedings for the determination of the mental condition of any such person in their boroughs or county who comes under their observation, or is reported to them as apparently insane, and when necessary see that proceedings are instituted for the commitment of such person to a mental institution; provided that such report is made by any person with whom such alleged insane person may reside, or at whose house he may be, or by a relative or by any duly licensed physician or by any peace officer, or by a representative of an incorporated Society doing charitable or philanthropic work. When these Hospital Authorities or Commissioners are thus informed, it shall be their duty to send a nurse or a medical examiner in lunacy attached to the psychopathic wards of their respective institutions, or both, to the place where the alleged insane person resides or is to be found. If, in the judgment of the chief resident alienist of the respective psychopathic wards, or of the medical examiner thus sent, the person is in urgent need of care and treatment or observation, he shall be removed to such psychopathic ward for a period not to exceed thirty days, and the

person or persons most nearly related to him shall be notified of such removal.

Discharge or certification and commitment to a mental institution, etc., must follow, before the expiration of thirty days.

In no case shall any insane person be confined in any other place than a State hospital or duly licensed institution for a period longer than thirty days or committed to any person, jail or lock-up for criminals.

Except in the City of New York and the County of Albany where provision exists, the proper authorities may provide a permanent place for the reception and temporary (thirty days') confinement, care and nursing of insane or alleged insane persons pending certification and commitment, and which shall conform in all respects to the rules and requirements of the Commission.

Insane Persons with Property who are Dangerous.

The onus of effecting confinement in cases dangerous to self or others is placed on relatives or *committees of person* which must be to the satisfaction of the health officer of the district and in New York and in the County of Albany to that of the authorities before cited. Failing relatives or *committees of person* acting, the health officer, or in New York, etc., the authorities mentioned, shall make or cause to be made, application to the Courts, and such a person may be arrested and removed to some comfortable and safe place. If an order of commitment has not been previously granted such shall now be applied for.

Under special agreement private patients may be admitted to State hospitals.

Voluntary Patients.

The superintendent of State hospitals or licensed mental institutions may receive and retain there as a patient any person suitable for care and treatment and who voluntarily makes written application therefor. Such an admission is notified to the Commission. A voluntary patient must give ten days' notice in writing of his intention or desire to leave.

Discharge of Patients.

The superintendent of a State hospital, on filing his written certificate with the Commission, may discharge any patient (except a criminal lunatic) who has recovered, and if not recovered and harmless to the care of his relatives or friends.

If the superintendent declines to discharge an unrecovered person upon request, the Court can be appealed to and the Judge may

order, if he thinks fit, the discharge upon such security as he may think fit to demand.

The superintendent may *parole* a patient for a period not exceeding a year.

The Commission may discharge a patient improperly detained in any institution.

The same procedure as to discharge obtains as regards private institutions except that refusal to discharge an unrecovered person is subject to the approval of the Commission and the patient, under certain conditions, may be transferred and detained in a State hospital.

The Licensing of Private Mental Institutions.

A patient suffering from mental disease shall not be received and retained for treatment for compensation or hire in any institution for the care and treatment of persons suffering from any diseases other than mental, and all mental institutions must obtain a license from the Commission.

To obtain a license, plans, etc., of buildings it is proposed to use must be submitted to the Commission who examine the premises and satisfy themselves that they are suitable in all respects for the reception of insane persons before a license will be granted.

The Commission may from time to time visit private institutions to see that the terms of their licenses are being complied with.

This section of the insanity law does not apply to psychiatric wards or pavilions of general hospitals.

Subjoined is an abbreviated copy of the form of commitment prescribed by the Insanity Law of the State of New York.

STATE OF NEW YORK—STATE HOSPITAL COMMISSION.

FORM FOR THE COMMITMENT OF THE INSANE, PRESCRIBED BY THE STATE HOSPITAL COMMISSION PURSUANT TO THE PROVISIONS OF THE INSANITY LAW.

PETITION.

IN THE MATTER OF
AN APPLICATION FOR THE COMMITMENT OF
.....
AN ALLEGED INSANE PERSON. }

To the Hon....., justice or judge of the.....court of the.....of.....
The petition of....., respectfully shows:

1. That he is a resident of the.....of....., in the county of....., and that he is (if petition is made by a public officer, so state, and of what county, city or town)..... Or, That he is..... of..... the alleged insane person.

2. That the alleged insane person now is at the house of.....in the county of
.....

3. That the facts upon which the application is based are as follows :

(The petitioner should state the facts observed by or the information known to him which would tend to show the existence of insanity, such as irrational acts or statements, attempts at suicide and attempts or threats to injure others. It is important to describe any change that has occurred in the behaviour and character of the patient.)

4. That he verily believes it to be for the best interest of the said alleged insane person that an order be granted directing h commitment to an institution for the insane.

5. Upon information and belief that the said..... herein mentioned is not under a criminal charge or indictment.

6. Upon information and belief that the said..... is the owner of the following property (real and personal) :

7. Upon information and belief that.....of.....N.Y., the.....(insert relationship as to father, mother, husband, wife or children), of said....., are the owners of certain property (real or personal) as hereinafter set forth :

Wherefore, upon the foregoing facts and the certificate of lunacy hereto annexed, your petitioner prays that an order be granted adjudging the said alleged insane person to be insane and committing h.. to an institution for care and treatment of the insane.

Dated....., 192..

No.....st., city, village or town of.....(Petitioner's signature and address).

STATE OF NEW YORK.

County of..... } ss. :
City, Town or Village of..... }

....., being duly sworn, deposes and says that he has read the foregoing petition and knows the contents thereof, and that the same is true to the knowledge of deponent, except as to the matters therein stated to be alleged on information and belief, and as to those matters he believes it to be true.

.....(Petitioner's signature).

Subscribed and sworn to before me this.....day of.....192..

CERTIFICATE OF LUNACY.

This certificate shall be filled out only by two qualified medical examiners.)

STATE OF NEW YORK

County of..... } ss. :
City, Town or Village..... }

(a) History obtained by Physicians.

Information furnished by.....of.....N. Y., who is a.....of the patient.

1. Patient is at....., county of....., age.....years; Nativity, state or country,.....; if foreign, date of arrival in U. S..... Port of entry..... Steamship or line..... Is he a citizen of the U. S. ?..... Is he a legal resident of New York State ?..... If so, of what county, city or town ?..... How long has he resided in New York State ?..... If not a resident of New York State, where is h legal residence ?..... Sex.....; colour.....; occupation.....; single, married, widowed, divorced. Birthplace of father.....; of mother..... Legal residence of father, if living..... Legal residence of mother, if living..... Has the patient had any insane relatives ?..... If so, state what relationship and whether paternal or maternal..... Have any of the relatives been in institutions for the insane ?..... If so state

relationship and give name and location of institution..... Has patient been considered as of normal mental standard?..... Institution or institutions where cared for in previous attacks, if any..... Has the patient had treatment for syphilis?.....To what extent does he use liquor, tobacco, drugs?..... When did present attack begin?..... Was it characterized by depression, excitement, untidiness, destructiveness, suicidal or homicidal tendencies, delusions, hallucinations, etc.?..... What was first noticed?.....

(b) *Examination by Physicians.*

(For method to be followed in examination see Instructions to Medical Examiners furnished by State Hospital Commission.)

Physical condition :.....
Mental condition : The conduct of the patient (including statements made to us by others) has been.....
The patient said in our presence.....

In our opinion the patient has the following dangerous tendencies :.....

We.....a legal resident of.....county of.....State of New York and.....a legal resident of....., county of....., and State aforesaid, being severally and duly sworn, do severally certify and each for himself certifies, with the exceptions which are hereinafter noted, as follows :

1. I am a graduate of an incorporated medical college, and a qualified medical examiner in lunacy ; a certificate of my qualifications as such examiner, or certified copy thereof, is on file in the office of the State Hospital Commission, and I have received from its secretary an acknowledgment of the receipt of the same.

2. *I have with care and diligence personally observed and examined on the date of this certificate, namely, on the.....day of.....192.,.....now residing or being at....., in the county of.....and as a result of such joint examination, find and hereby certify to the fact that he is insane and a proper subject for custody and treatment in some institution for the insane, as an insane person under the provisions of the statute.*

3. I have formed this opinion from the history of the case and my examination of the patient as given above.

4. *The reasons for considering this an emergency case are as follows :.....*

5. That the facts stated and information contained in this certificate are true to the best of my knowledge and belief.

.....M.D.
.....M.D.

Severally subscribed and sworn to before me this.....day of....., 192.....

Certificate of Justice or Judge relating to personal service.

Before the Hon....., justice or judge of.....court ; county, city or town of..... on the.....day of....., 192....

IN THE MATTER OF
AN APPLICATION FOR THE COMMITMENT OF }
..... }
AN ALLEGED INSANE PERSON

(1) I do hereby certify that, as appears by the affidavit of service submitted to me, personal service has been made upon the alleged insane person above named on.....192.... and upon.....who is.....of the alleged insane person, or with whom he resides or at whose house he is (strike out words not required) by.....who is.....of the city, town or village of.....in the county of.....

Or (2) I do hereby certify that I have dispensed with personal service, or, that

I have directed substituted service as provided by law upon the person hereinafter named for the following reasons :

Justice or Judge of.....Court of.....

IN THE MATTER OF
AN APPLICATION FOR THE COMMITMENT OF
AN ALLEGED INSANE PERSON.

TAKE NOTICE that on the annexed petition of.....and the certificates of Doctors.....and.....hereunto annexed an application will be made before the Honourable....., Judge of the..... Court at the.....at.....M., on theday of.....192...., for an order committing you to the.....as an insane person.

COUNTY OF.....ss.
.....being duly sworn, says that he is.....of age, and that on the.....day of.....192...., at.....he served a notice in the foregoing form of application for an order adjudging such person to be insane upon the person alleged to be insane, namely,.....by delivering a copy of said notice and application and annexed petition and certificates of doctors personally and leaving the same with He further says that he knew the person served as aforesaid to be..... the person mentioned and described in the said application as an alleged insane person.

Sworn to before me this.....day of.....192....
Signature of Server of Notice.

ORDER OF HEARING.

(If a hearing before a judge or referee be granted upon the demand of a relative or near friend of the alleged insane person or, upon the motion of the judge, the following form shall be used, otherwise it should be omitted) :

Before the Hon....., justice or judge of.....court; county, city or town of....., on the day of.....192....

IN THE MATTER OF
AN APPLICATION FOR THE COMMITMENT OF
AN ALLEGED INSANE PERSON.

An application for an order of commitment of the above alleged insane person based upon the petition of....., and upon a certificate of lunacy dated..... 192...., having been made, and (state degree of relationship, or if none, name of near friend).....having demanded a hearing upon such application, it is hereby

ORDERED, That a hearing on such application for an order of commitment of the above alleged insane person be had before....., at the.....of.....on theday of.....192...., at.....m., at which time testimony shall be heard touching the alleged insanity of the aforesaid person, and if it be deemed advisable said person may be examined either in or out of court.

The judge may (or if a referee be appointed, the referee herein named shall) hear such testimony and make such examination and report the same at once with his decision (or opinion) as to the insanity of such alleged insane person.

And that this order be served upon....., the petitioner, and the following named persons :

..... of.....
..... of.....
(Signature).....
Justice or judge of the.....court...

DECISION OF COURT AFTER HEARING.

(Decision of judge to be used only if a hearing is had.)

IN THE MATTER OF
AN APPLICATION FOR THE COMMITMENT OF
.....
AN ALLEGED INSANE PERSON. }

A hearing having been had upon the application of.....for an order of commitment of the said person to an institution for the custody and treatment of the insane on the.....day of.....192....., and testimony having been taken as required by law, I do hereby decide that the said.....is insane and should be committed to an institution for the custody and treatment of the insane.

Dated the.....day of.....192..... Justice or judge of the.....court..... of

ORDER OF COMMITMENT.

Before the Hon....., justice or judge of.....court ; county, city or town of
.....on the.....day of.....192....

IN THE MATTER OF
AN APPLICATION FOR THE COMMITMENT OF
.....
AN ALLEGED INSANE PERSON. }

Upon the petition of....., dated....., 192.....and a certificate made by two duly qualified medical examiners in lunacy, which certificate is dated on theday of....., 192....., and which is annexed hereto, and upon such other facts and information as were produced before me (or a referee appointed by me) at a hearing duly had, and being satisfied that the above alleged insane person is insane and a proper subject for custody and treatment in an institution for the insane, within the meaning of the statute, and that he is not in confinement under a criminal charge, it is therefore hereby

ORDERED, That the said.....be and hereby is adjudged insane and that he be committed to (insert, correctly, official title of institution).....an institution for the custody and treatment of the insane.

ORDERED, That the Superintendent of the.....Hospital forthwith at the time of the commitment of.....to said Hospital, forward a verbatim copy of the entire proceeding herein to the office of the Clerk of.....County.

ORDERED, That the said papers so sent shall be sealed in the office of the County Clerk of.....County, and be exhibited only to the parties to the proceedings, or someone properly interested, upon the order of the Court.

.....
Justice or judge of.....court of

STATEMENT OF FINANCIAL CONDITION OF INSANE PERSON.

(If the order of commitment be directed to a State Hospital, the statute requires that the justice or judge shall append a statement as far as can be ascertained of the financial condition of the insane person and of the persons legally liable for his maintenance.)
(See section 82 of Insanity Law.)

Real estate, location and estimated value.....
.....
Personal property and income of insane person herein and of his legally liable relatives
.....
Justice or judge of.....court of

CONCLUSION AND REFERENCES.

The *questionnaire* sent to the Corresponding Members of the Association, the replies to which form the main basis of this *précis* of evidence, was compiled by Dr. F. H. Edwards, of Camberwell House Hospital, London, S.E. 3.

The Corresponding Members referred to are :

Prof. Leonardo Bianchi, Manicomio Provinciale di Napoli, Musee N. 3, Naples, Italy.

Johannes Bresler, M.D., Sanitatsrat, Director of the Provincial Mental Hospital, Kreuzburg, Oberschlesien, Germany.

Dr. H. Colin, Secrétaire General de la Société Medico-Psychologique de Paris, 26, Rue Vanquelin, Paris (Ve).

Dr. Buncke on behalf of Prof. Kraepelin, Professor of Psychiatry, The University, Munich.

Dr. Wilfrid Coroleu, Medico forense del distrito de la Barceloneta, Aribau, 31, pral, Chaffan Consejo Ciento de 7 a 8, Spain.

Dr. Wilhelm Falkenberg, Sanitatsrat, Direktor der Berliner, Torenanstalt, Herzberge, Berlin-Lichtenberg.

Dr. Giulio Cesare Ferrari, Director of the Manicomio Provinciale, Imola, Bologna, Italy.

Dr. Alexander Pilcz, VIII/2 Alserstrasse 43, Wien, Austria.

Prof. D. C. Winckler, Psychiatrisch-Neurologische Klinik der Ryos-Universiteit te Utrecht, Nicolaas Beetsstraat 24, Utrecht.

Reference to the following books and journals may be useful to the Commission:

"Baden Law Relating to the Mentally Afflicted," *Psychiatrisch-Neurologischen Wochenschrift*, 1910-11, vol. xii, p. 231.

"Saxony Law Relating to Lunacy," *Psychiatrisch-Neurologischen Wochenschrift*, 1913, vol. xv, p. 417.

"Die Entmündigungs, Verordnung und die Iwenaus'allen," by Dr. Berze, *Jahrbucher für Psychiatrie*, 1919, vol. xxxix, p. 47.

"Mental Hygiene and Prophylaxis in France," by Dr. H. Colin, *Journal of Mental Science*, 1921, vol. lxxvii, p. 459.

"Legislative Restrictions in Connection with the Treatment of Incipient Insanity," by Dr. Wilfrid Coroleu, *Journal of Mental Science*, 1921, vol. lxxvii, p. 470.

The Insanity Law. State Hospitals Press of New York, 1924.

The Care of Mentally Afflicted and Mentally Abnormal as Prescribed by Law, Ministerial Decrees, Municipal Orders and

Jurisprudence, by Dr. Moeli. Halle a/Saale, Muhlweg 26: C. Marhold.

The Principles of the Comparative Laws for Lunatics, by Dr. Wyler. Halle a/Saale, Muhlweg 26: C. Marhold.

Annuaire de L'Internat en Médecine des Asiles Publics d'Aliénés, 1924. Paris: Vigot Frères.

L'Aliéné et les Atiles d'Aliénés au point d'une Administratif et Juridique, by Dr. Julian Raynier and Henri Beaudorien. Paris: Librairie le Francois.

Summaries of State Laws relating to the Insane. New York: National Committee for Mental Hygiene.

Mental Diseases: A Public Health Problem, by Dr. J. V. May. Boston, U.S.A.: Richard G. Badger, 1922.

Insanity and Law, by Dr. H. Douglas Singer and Dr. William O. Krohn. Philadelphia: P. Blakiston's Son & Co., 1924.

Part II.—Reviews.

The Ninth and Tenth Annual Reports of the Board of Control for the Years 1922 and 1923.⁽¹⁾

Although we have been unable hitherto to comment on the Board of Control's reports for 1922 and 1923 we have by no means been unobservant of the Board's doings. Many pages of the last and the present volumes of the Journal have been devoted to the consideration of the reports of special committees, appointed either by the Minister of Health or by the Board, on matters of great importance in regard to the administration of mental hospitals and the care and treatment of the mentally afflicted, and this very largely has exhausted the space which could reasonably be allotted to the Board's activities.

In our previous review we expressed some concern as to the future of the Board, and whether it would survive the close scrutiny and, in many respects, unfair and prejudiced criticism then being directed to every aspect of our lunacy administration. The *finale* has been the appointment of a Royal Commission on Lunacy and Mental Disorder (England and Wales), and it is the hope of the Association that one outcome will be the strengthening of the Board, especially in medical personnel, and generally in regard to its power to enforce its views on matters touching the care and treatment of the insane. In this number is published the *précis* of the Association's evidence before the Royal Commission, in which are incorporated the Association's views as to a reconstructed Board under the name of "The Board of Mental Health." For years the Board's work has been handicapped by disabilities which we need not repeat (our pages have rendered them

(1) See note, January number, 1923, p. 99.

familiar to our readers). Nevertheless, the Board can again be congratulated on some really profitable work during the years under review and since, which we must confess seems very largely due to the surprising capacity shown by individual Commissioners for handling many diverse matters at the same moment, and to their tireless energy and their absolute devotion to the cause of a better lunacy service. Such exhausting work would not be called for if the Board were properly constituted. The sympathy, encouragement and inspiration of the Chairman—Sir Frederick Willis—are undoubtedly a great asset to the Board, and of which there is unmistakable evidence in these Reports. On his personal initiative the first Lunacy Conference was called on January 19-20, 1922, which we venture to think was one of the most important departures in the history of lunacy administration, and we dealt with this fully at the time (*vide* April number, 1922, p. 175). This departure has been repeated recently, and two conferences, one on the Report of the Committee on Nursing, and the other on Accommodation, etc., were held at Burlington House, Burlington Gardens, W. 1, on April 21 and April 22, 1925. At the moment we are unable properly to apprise the value of these latter gatherings. The room selected for these assemblies was the worst we were ever in, both in regard to seeing and hearing, and it was rare that we heard a speech right through from beginning to end. Our impression is that when the proceedings are published they will be found to contain much information of the greatest value to medical superintendents and mental hospital Committees, and we await their issue with the greatest interest.

We have already dealt with the reports of the three Departmental Committees on Diet, Nursing, and Records respectively, which were appointed by the Board in 1922 (*vide* October number, 1924, p. 612; April number, 1925, p. 289). As to the Departmental Committee which became known as "Sir Cyril Cobb's Committee," we commented at length on its report (*vide* January number, 1923, p. 90), and the Board's comments on the Committee's recommendations we duly published in the Journal (*vide* April number, 1923, p. 272). None of these matters now call for further comment, but germane to the subject of the latter Committee as appendices to the Board's report for 1922 are the reports of the Commissioners' inquiries into Dr. Lomax's allegations regarding happenings at Prestwich Asylum, and also into the allegations made by an ex-patient while detained at Long Grove Mental Hospital. The disgruntled people behind these attacks on our lunacy administration have no reason to complain that their allegations were not sifted to the bottom—and through a very fine sieve too—which is very characteristic of the Board's investigations.

The Board only make a passing mention of the Mental Treatments Bill of 1923, in their report for that year, but it is well known that the Bill was very largely the outcome of the first Lunacy Conference, and therefore the Board's connection with many of the proposals contained in the Bill must have been a close one.

However much we regretted the enforced abandonment of this Bill, we hope soon to see a revised and better edition on the Statute Book, and we feel sure that the Commissioners will continue their strivings to this end.

LUNACY.

Number of notified insane.—The number of notified insane continues to rise, the increase for 1922 being 2,565, which was very near the annual average for the decade immediately preceding the war. The increase during 1923 rose to the high figure of 4,055—the largest ever recorded. These annual increases may be explained on suppositions other than an increased incidence of insanity. We have our own views on the matter, but seeing that it is to be the subject of further comment by the Board in a future report a few comments will suffice now.

The man in the street naturally asks why the insane continue to accumulate, notwithstanding a rising expenditure in housing and skilled treatment and the operations of the Mental Deficiency Act. There is a tendency to forget now-a-days that one wholesome function of the Lunacy and Mental Deficiency Acts is the segregation from the public of those who, by reason of mental disorder or defect, impair the social machine by their inefficiency as citizens, and that the more thoroughly this is done the better for the home and for the nation.

Until we are in a position, financially and otherwise, to cure mental disease more extensively (and it will be an expensive matter, involving many factors other than indoor treatment of a mental hospital), we must continue to carry out an essential duty to the community by acting as guardians to the insane we cannot cure. We thus reduce the intensity of many other costly social problems. In the majority of cases the private care of the chronic lunatic is but a poor substitute for institution care, and unless there is exceptionally suitable environment, the proper place for such a person is undoubtedly a mental hospital or home.

As regards the Mental Deficiency Act, its operations are not as yet extensive enough to have much effect on the number of notified insane, and before this Act can really effectively touch the problem it was designed to solve, the biological fact must be recognized that inherent mental defects of the most serious kind sociologically do not show themselves until one of the basic instincts of human character, that of reproduction, becomes active during puberty and early adolescence. We have enlarged on this point before, and trust it will not be forgotten when the Act comes to be revised.

"Rate-aided" and not "pauper patients."—We are unfeignedly glad to note that, in the 1923 report, the Board announces its intention for the future to style those patients who are either wholly or partly maintained by the Poor Law Authorities as "rate-aided" and not "pauper." This is one of the recommendations of the Association, and its natural corollary is the severance of the Poor Law and the care and treatment of the destitute and indigent insane. It is the indigent who are most hardly hit by needing, in the first

instance, to apply to the Poor Law and become pauperized before they can be treated within the law for mental afflictions. Although the severance is greatly to be desired, it will be difficult of achievement unless the Poor Law Authorities are abolished, and in the main their functions taken over by public assistance committees of the county and borough councils. There is no reason, however, in the meantime why this stigma should be emphasized by classifying such cases in mental hospitals as "pauper."

Voluntary boarders.—In our last review we commented at length on some aspects of this category of mental patient, especially as regards regularization of the formalities in connection with admission, discharge and, when necessary, certification. Since then another category of mental patient was envisaged by those who drafted the Mental Treatment Bill of 1923, namely the "non-volitional." The difficulty arose at once of clearly defining the meaning of the new term. The case cited in our last review and the query we put as to its disposal, etc., was one in point. Briefly, we asked, could a patient, who was admitted voluntarily and who, say, developed acute confusion, in which mental state he could not take advantage of his voluntary status and claim his discharge, be retained without certification? We doubted it. Under the Mental Treatment Bill he could be dealt with under Section 4 and certification avoided. We think that a non-volitional case, whether admitted so or becoming so afterwards, should be notified to the Board as representing the legal authorities. The Board should act as guardian by periodic inquiries, and visitation if necessary, until a satisfactory disposal be effected.

An intricate point has been raised as to whether a mentally afflicted person can legally sign a contract to dispose of himself as a voluntary patient. The present Lunacy Acts speak of "boarders" not "voluntary boarders," and, as regards licensed houses, a person who is not in any way mentally disordered can become a voluntary boarder if he is a relative or friend of a boarder. Licensed houses can therefore receive two types of boarders, and in both cases official consent must be sought by the boarder himself. There is no actual contract but an application for admission to a mental institution and a "consent" thereto by those authorized by the Lunacy Act to give it. However, the law recognizes that a voluntary patient mentally afflicted can demand and obtain his discharge, and it follows that it cannot reasonably deny the legality of his demand for admission. As we have said before, the simpler the formalities of admission the better. The only grounds we know of for official consent to be required before a voluntary patient can be admitted is to make sure whether he is or is not a certifiable patient.

Why "consent" is required in the case of a sane boarder we cannot imagine, except that perhaps such a case was thought to be still more suspicious as regards certifiability. In any case, the Association thinks that, in these days, such consent is no longer required.

The total numbers of voluntary boarders admitted to registered

hospitals and licensed houses during 1922 and 1923 were 400 and 420 respectively. The figure for 1901 was 273. To these must be added 452 admitted to the Maudsley Hospital during the year ending January 31, 1925. As regards the former, the demissions by certification were, during 1922, 54, and 1923, 77. During 1922 one voluntary boarder committed suicide, and during 1923 no less than three, which does not point to there being any hurry to effect certification.

Admissions, discharges and deaths.—We continue our brief reference table regarding these. For purposes of comparison those for 1921 are reproduced:

Total direct admissions :

	1921.		1922.		1923.
Males .	10,412	} 22,740	10,353	} 23,125	10,310
Females	12,328		12,772		12,744
First admissions	18,584		18,844		18,934
Discharges					
“ recovered ”	7,394		7,467		7,295
Recovery rate on direct admissions :					
Males .	28·08%	} 32·52%	29·12%	} 32·29%	28·69%
Females	32·26%		34·86%		34·03%
Discharges “ not					
recovered ”	3,554		3,508		3,338
Total deaths	8,543		9,391		8,355
Death-rate :					
Males .	9·35%	} 8·37%	9·98%	} 8·99%	8·68%
Females	7·59%		8·21%		6·95%

The admissions during 1922 were the highest recorded for any year except 1914, when they were about 100 more than in 1922. The ratio of admissions to the population has been practically stationary during the past three years, *i.e.* about 6 per 10,000.

The absolute discharges from reception orders (recoveries, relieved, etc.) were for 1922 47·5 *per cent.*, and for 1923 46·25 *per cent.* of the direct admissions.

The death-rate of 7·71 *per cent.* for 1923 was the lowest ever recorded.

From a causes of death table given in the report for 1923 we gather that 1,062 men and 241 women, total 1,303, succumbed to general paralysis out of a total of 8,851 deaths (males 4,330, females 4,521).

Malarial treatment of general paralysis.—Although much pre-occupied with administrative matters, many of them the outcome of a wildly directed agitation for lunacy reform and others in connection with lunacy legislation, the Board has found time to interest itself with new modes of treatment of insanity, the most outstanding during recent years being the malarial inoculation treatment of general paralysis, which is widely extending. Dr. C. Hubert Bond, the Senior Medical Commissioner, at the Quarterly Meeting of the Association held in Edinburgh on February 19, 1925, said that the attitude of the Board was one of friendly and interested

watchfulness, with a great desire to keep in touch with it. So many general paralytics thus treated were remaining at home without relapses that the Board might not be able to remain quiescent on the matter. Even if in a big percentage, like 25 or more, a quasi-convalescence could be produced, it was surely a good step in advance.

In February, 1924, the Board issued a circular letter on the subject indicating the rules recommended to be carried out in connection with the new line of treatment (*vide* our October number, 1924, p. 327). In the report for 1923 a page or so is devoted to the same subject. The incidence of general paralysis for the years 1878 to 1914 inclusive was 12·8 *per cent.* for men and 2·6 *per cent.* for women on the total direct admissions. For the three years 1920–22 the average incidence for men was 10·7 and 1·5 for women similarly calculated—a remarkable drop, especially as regards women. Up to recently there was no effective treatment for general paralysis, so the cause of this decline must be sought in other directions. The Commissioners suggest (a) correct diagnosis, (b) more early diagnosis and effective treatment of syphilis.

One aspect of the effects of this new treatment is that many cases of general paralysis may be improved mentally, but only so far as to become good institutional working patients, with the result that there would be a lower male death-rate and an increase in the number of notified male insane. Such cases would need some form of special observation, and might call for the creation of colonies for convalescent general paralytics on the lines of colonies for epileptics.

Out-patient treatment of mental disorders.—This is a matter very largely linked up with the indoor treatment of voluntary patients suffering from mental disorders. Our view is that the one is supplementary to the other, and that treatment as an out-patient is, in very many cases, more likely to be successful after a few days in bed for rest and quietude, and especially for observation and examination. Until the public generally are educated to apportion the blame for many common ailments and abnormal feelings to a failure of neuro-psychic processes and not to bodily disease, they are not likely to apply to mental out-patient departments of general or mental hospitals for treatment without some pressure or persuasion. Our experience is that no person resents the suggestion that there is something wrong with his mind and nervous system as the person just on the verge of a serious mental breakdown. The suggestion of such a thing is taken as an insult and the situation calls for delicate handling. From one point of view it is right that this should be so, for nothing is more likely to sap the stamina and courage of a nation than an over-consciousness of nervous and mental processes on the part of its citizens. To blame the mind for every ill flesh is heir to is the effect of the operations of an over-pushful mental hygiene organization, and on the whole it is perhaps better that a community should not know that it has any mental processes or nerves at all than to become hypochondriacal and neurasthenical.

Mental hygiene education requires to be carefully carried out, and

though best undertaken during the later periods of the ordinary education of children at school, such instruction for adults can be expected to radiate from clinics and out-patient departments of general and special hospitals. Our National Council for Mental Hygiene is alive to this method of cultivating mental hygiene, and for this and other reasons strongly advocates the clinic treatment of early mental cases. However, until something very definite in these directions is undertaken it is not to be expected that the person suffering from exhaustion confusion, hallucinations, anxiety states, mild affective disturbances, failure of memory and capacity for work, etc., will knock at the door of an out-patient mental department for treatment, and still less clamour for admission to a mental institution or mental wards of a general hospital. That there should be such out-patient departments attached to every general hospital and infirmary, or associated with the district mental hospital, cannot be questioned, especially as regards the former. The early mental case, if at all cognizant that there is something wrong with him, puts his complaint down to a physical cause, and promptly takes it to a general hospital or infirmary or consults his doctor. It is at this stage that the first failure occurs. The mental origin is not recognized. The second failure is that if it be recognized, there is no mental department or specialist to refer the case to. It is thus allowed to drift or is wrongly treated, and, after a longer or shorter time, the R.O. comes to the rescue, and there is compulsory treatment. So, although patients may not apply directly to mental out-patient departments, they should at least arrive there indirectly if the medical interns and general practitioners were more alive to symptoms of early mental breakdown.

The Commissioners note the progress being made generally in the establishment of mental out-patient departments. Some interesting developments in this direction have occurred at Oxford, Bethlem and the Middlesex Hospital, and are commended in the 1922 report. The existence of an out-patient department at the West Riding Mental Hospital for over thirty years is mentioned. We should like to add that Dr. Rayner started a like department at St. Thomas's Hospital about the same time, if not before, and also Dr. Percy Smith one at Charing Cross. A great advance was made when the Maudsley Hospital was inaugurated, and the experiences gathered there are likely to have a profound effect on the future of this movement. Dr. Mapother's first annual report is a document of absorbing interest, and the many practical details involved in the administration of a voluntary mental treatment system and the results of the first year's working thereof deserve greater notice than can be afforded here.

Infectious diseases.—Up to June 30, 1921, the Board had based its observations on the incidence of infectious diseases on mortality returns. The numbers dying from such cause were definite facts of some importance, but of course were no real guide as to incidence. Since that date, however, the Board have been receiving weekly returns of the actual occurrence of such diseases, and these, though not so reliable, when considered with the mortality returns now

enable the Board to explore the situation in regard to these matters with some degree of certainty as to facts.

Of course, the value of these weekly returns depends entirely upon accurate diagnosis, and this is often one of great difficulty with the insane. As regards *tuberculosis*, some medical officers may be actuated mainly by prophylactic motive and include as tuberculous a great number of suspected cases. No doubt these are absorbed in the returns, and only deleted after prolonged observation, or on the appearance of another medical officer with greater respect for the purity of statistics. It should not be impossible for the Board to arrive at some standard of diagnosis of tuberculosis, or to have suspected cases returned separately. Neither cough nor sputum may be present, and the results of physical examination of the chest may be practically *nil*. Yet at the *post-mortem* very advanced tuberculosis of the lungs may be revealed. We have no doubt in our own minds that this accounts to some extent for the wide variation in the incidence of phthisis as revealed by the returns so far. It goes without saying that all cases of phthisis, whether suspected or undoubted, should be isolated. This again is a difficulty, unless there is a specially constructed sanatorium.

Another factor in the incidence of tuberculosis worthy of the Board's consideration is one revealed by a comparison of the mortality from this disease among the general population, and among patients in mental hospitals. The high incidence of tuberculosis as regards the latter is directly related to a high general death-rate. Mental hospitals with a low incidence of tuberculosis draw their patients from rural areas which include a number of non-industrial towns, and those with a high incidence from areas which include many towns of an industrial character. Thus one important factor of a high incidence of tuberculosis in mental hospitals may well be the general impaired physical condition of patients on admission.

It is gratifying to note that for 1923 there was a very satisfactory decline in the incidence and mortality of tuberculosis, the latter being the lowest for many years past.

The direct prophylactic measures against tuberculosis in mental hospitals we think most worthy of serious consideration are (1) rigid isolation of known and suspected cases; (2) periodic sterilization of walls, furniture, curtains, carpets, etc.; (3) the installation of vacuum cleaning; (4) failing the latter a careful attention to the time and mode of sweeping and dusting rooms; (5) the use of some form of antiseptic wax as a cleaning preparation for floors, furniture, door handles, etc. An experiment with the latter seems to be giving good results at one institution.

As regards *dysentery*, the report for 1923 also records a satisfactory reduction in both incidence and mortality, the former from 8·7 per 1,000 to 4·5 per 1,000. The incidence of severe diarrhœa also fell from 3·9 per 1,000 to 2·4 per 1,000. As regards the diagnosis of dysentery the position is not so difficult. The clinical features are very definite, and we think that those cases of severe diarrhœa with positive results on bacteriological examination should also be registered as dysentery. The record of the incidence of other cases

of severe diarrhoea will be valuable until we know more about the ætiology of dysentery, which term possibly covers not one but several disorders of the colon.

Typhoid and paratyphoid.—We are glad to note that the Board, in their report for 1923, recognize that the grouping of these conditions as "enteric" is no longer desirable. By "enteric" most of us mean "typhoid." Both paratyphoid "A" and "B" are much less serious illnesses and rarely fatal. During the war it was discovered that a great proportion of those who were returned as "enterics" were suffering from paratyphoid, which cleared up the mystery as to why antityphoid inoculation had suddenly failed to give immunity. There appears to be no doubt that the presence of carriers is an important factor in the occurrence of these diseases, and this may answer the difficult question raised by the Board as to why the incidence in mental hospitals is preponderatingly greater among female nurses and patients than among male nurses and patients. Good work in systematically searching out carriers is in progress at some mental hospitals.

Erysipelas.—Any attempt to ascertain the incidence of this almost nebulous condition seems hopeless, and the Commissioners would do well to indicate exactly what they mean by this term. Septic infections are apt to spread if conditions are favourable, and it has not been unknown for every case dying in an infirmary ward for some months to show recent vegetations on the cardiac valves. In many cases of the so-called erysipelas, very careful examination reveals the place of entry of the septic organism, and prompt treatment at this point is followed by quick recovery.

Pneumonia.—Secondary and terminal pneumonias are so commonly found in those dying in mental hospitals from any illness lasting over a few weeks that their importance as a cause of death is very doubtful. Primary pneumonias, however, are on a different footing, and though the exact pathology of these conditions has yet to be defined, they are rightly included as notifiable diseases. The Board again emphasizes the point that at those institutions where the incidence of tuberculosis is most evident, dysentery, erysipelas and pneumonia follow suit. There might be wisdom in remembering that "seek and ye shall find" is very true of institutional medical work. This "seeking and finding" depends upon the strength of the medical staff and the encouragement given to clinico-pathological work. The advent to a mental hospital of a medical staff numerically and otherwise strong is sure to alter the complexion of returns and statistics, and understaffing in this respect does not necessarily mean greater incidence of diseases and a corresponding increase in the number of cases notified. Until our mental hospitals are above reproach in this matter, so long will statistics indicate tendencies rather than facts.

Death-rates in the general community compared with those in mental hospitals.—Some interesting pages of the 1923 report are devoted to a consideration of this subject. There is one point the Commissioners do not take into account in this comparison, and that is the comparatively few cases among the general population in which

the cause of death is ascertained by *post-mortem* examination. The validity of the death returns regarding the general population is much impaired thereby. Strictly speaking the causes of death among the latter are only "apparent," while for the most part those of patients dying in mental hospitals are "ascertained." This particularly affects such causes of death as cancer and tuberculosis, where diagnosis is admittedly difficult and unreliable. Notwithstanding this, it is of considerable interest to be reminded at this time that the incidence of cancer is low in mental hospitals in comparison with that of the general population, and the Board think that this fact might be worthy of the attention of the Cancer Research Committee, and perhaps help to elucidate the still unsolved problem of its ætiology.

Encephalitis lethargica.—The Commissioners in their 1923 report note the advent of this disease to a position of some importance as a factor in the ætiology of mental infirmity. Prominence was given to this disease and its nervous sequelæ by several outbreaks during the past decade, and there can be no doubt that many of these cases found their way into mental institutions without their nature being recognized on admission. Medical officers are now on the look-out for them with a good chance of correct diagnosis. Past cases are being recognized and re-classified, a new light being shed on the prior history of a feverish or influenzal attack, with nervous prostration, giddiness, falling about, etc., and subsequent divers paralyses, both motor and sensory. We venture to think that there has been a greater accumulation of cases of encephalitis lethargica in mental hospitals than is usually imagined, and we are glad that the Board is giving some attention to the matter. So far no statistics as to the incidence of the admission of such cases to mental hospital care are available, and no case is recorded as dying during 1922 from this cause.

We learn from a paper by Dr. P. K. McCowan in the *Lancet* of February 7, 1925, that 12 cases from the London County mental hospitals have been segregated at the West Park Mental Hospital. The results of his preliminary study of these cases is reported, and his main conclusions are: (a) That certifiable insanity is extremely rare as a sequel of encephalitis lethargica; (b) many cases of insanity following upon this disease are not true sequelæ, the encephalitis merely acting as a precipitating psychic cause; (c) systematized delusions and dementia may characterize post-encephalitic psychoses; (d) psychotic symptoms during the acute phase of the disease are toxic in origin, and of much better prognosis than psychoses developing later. He also thinks that the virus of encephalitis lethargica may remain latent but potent after the acute symptoms have subsided.

There is no doubt, however, that the existence of this disease will have to be reckoned with in mental hospital practice for the future.

Mental Hospital Boards.—We are not, generally speaking, enamoured with the idea of the centralization of the administration of a group of mental hospitals under one management except for

certain clearly defined purposes, like the pay and grading of staff, etc. Mental hospitals have traditions and aspirations which are individual to each, and the *esprit de corps* and emulation so helpful and even necessary to progress is apt to be lost when a hospital, hitherto a separate unit, is merged in a "service." The navigating of a fleet across the seas has, of necessity, to be at the speed of the slowest ship, and in the same way the benefits of co-operation are apt to be secured at the expense of initiative and progress.

The ideal government of a hospital is by a board of managers, with absolute control over all general administrative matters, and with considerable powers of initiative and experiment, but with a financial limit. The medical staff then know with whom they are dealing and are in personal contact with the managers. There is no delay in carrying out the business side of the hospital, and advance can be made in regard to medical administration, research and clinical work without reference, except consultation, to other hospitals. The principle underlying this has been at the root of the splendid progress made in medicine and surgery in the general hospitals, and should not be lost sight of when the management of several mental hospitals comes to be placed under one authority or board of managers.

The Commissioners note that the Staffordshire Asylums Act, 1922 came into operation on April 1, 1923, and called into being the third mental hospitals board, following the example of Lancashire and the West Riding of Yorkshire.

Finance.—We are always interested in the Commissioners' comments on finance and the cost of maintenance of public mental hospitals. While on the one hand they deplore a rising expenditure, as all self-respecting public authorities should, they are full of suggestions, most of which, if carried out, to say the least of them, would not lower the maintenance rate. They are able, however, to report a substantial decrease in the average weekly cost during each of the two years under review—£181,007 for 1922 and £606,977 for 1923. The cost of building and repairs has gone down also. This is the first turn of the tide for better or worse since 1911. The fall has been in commodities purchased generally, salaries and wages increased during 1921-22, and showed a substantial drop during 1922-23, due to the fall in the bonuses based on the cost of living. The cost of pensions, including those granted under the Lunacy Act of 1890, was 7½*d.* per head in 1922 and 8½*d.* per head in 1923.

General condition and progress.—The Board in 1923 reverted to its pre-war practice of publishing as an appendix to the annual report copies of the entries made in the visitors' book by Commissioners on their annual visitation to the mental institutions throughout England and Wales. We welcome this return to normal conditions, not only for the intrinsic merits of these entries, but also as possibly adumbrating the inclusion in future annual reports of some of the more important of the medico-psychological tables. Of the administrative tables the one most missed in actual administration is Table X—Miscellaneous Returns connected with the Care and Treatment, etc.

The Commissioners are able to report substantial progress in many directions in care and treatment. The matters to which attention is drawn are classification, dietaries, personal hygiene, dental and other visiting specialists, general amenities and parole, clothing, objects of interest and amusement, and occupational treatment.

In our mind the more important of these matters are the appointment of adequate consulting staffs and occupational treatment.

Consulting staff or visiting specialists.—The future of good sound clinical work and the cure of mental disorders undoubtedly lies in properly organized team-work, especially as regards recent cases. Nothing impressed us so much in this respect as a perusal of Dr. Cotton's paper on "The Relation of Chronic Sepsis to the so-called Functional Mental Disorders," read before the Annual Meeting of the Association in July, 1923, and the discussion which followed. Perhaps the methodical investigation of cases impressed us more than the actual treatment advocated, though we formed a high opinion as to the possibilities of the latter. Also one great lesson of the war as regards medical treatment was the success of team work.

Much could be done in mental hospitals in this direction, provided there were adequate laboratory facilities, by the resident staff, but situated as they are, visiting specialists are an absolute necessity to that thorough investigation of the factors underlying the presence of mental abnormalities so essential to successful treatment.

The adoption of visiting specialists is a matter of relatively little cost, and delay in this matter means waiting for the costly establishment of mental clinics before any real progress can be made in the treatment of mental disorders.

Occupational treatment.—The Commissioners apparently refer to something allied to, but not identical with, occupational therapy as it is now generally understood. Occupation, especially useful occupation, is good for everybody, and especially for patients in mental hospitals who are mentally and physically capable. But occupational therapy must not be confused with vocational work, *i.e.*, the teaching of suitable occupations for the benefit of the patients both while in the hospital and on discharge. In an Occasional Note (January number, 1923, p. 95) we said: "Just as the disordered mind shows itself in disorders of behaviour, so it is thought that a restoration of behaviour or a re-education of muscle and volition may restore the intellectual and affective faculties." It is this finer occupational work that has come to the fore in recent years. The sole consideration is the psychic treatment of the patient. The occupation, its nature, the duration of effort, etc., are prescribed by the doctor just as he prescribes physic. Only patients incapable of concentration, or of giving attention, such as those suffering from states of confusion, mild stupor, restlessness, morbid introspection, etc., are eligible.

The so-called "able but unwilling" patients are excluded, and also of course those able and willing. A few of the latter, however, are useful as "decoys" or examples. Special classes are held for

the worst cases in some central situation. Others less afflicted attend classes in the wards. The industrial side is of little or no importance. Certainly some of the things made are saleable, and the profits made may help to buy new materials. Even if there were no profits, experience shows that occupation therapy is, in many cases, good medicine, which is the important point. When capacity to work is sufficiently restored, then an officer of the character envisaged by the Commissioners can be very useful. True occupation therapy is not limited in application to recent cases; many chronic patients respond splendidly, and are put on the way to becoming useful workers. Even cases of terminal dementia can be re-educated, though the results are hardly worth the large expenditure of time and effort which is found necessary.

(To be continued.)

An Outline of Psychology. By WILLIAM McDougall, F.R.S.
London: Methuen & Co., Ltd., 1923. Demy 8vo. Pp. xvi + 456. Price 12s.

In a previous number (July, 1923, p. 376) we announced the publication of this book, and from our preliminary survey of it we were led to state that it would go far to clear up the confusion created by the contentions of modern schools of psychology, and we still feel that in regard to many of the more important points of difference our statement is correct. The views of one who is, perhaps, the most outstanding figure to-day in the sphere of psychological research demand both our respect and serious consideration, and it is because Prof. McDougall's teachings on certain matters present points difficult of acceptance, and also because his book deals with issues of such vast importance, that we have felt compelled to postpone from time to time a review which ordinarily would have appeared in our pages long ago.

In 1905 Prof. McDougall published his *Primer of Physiological Psychology*. It deals with the fundamental relationship between neural and psychic processes, and may be considered as a classic. It is perhaps the best-read book on psychology that was ever published. It can be read over and over again and something illuminating discovered on every occasion. It is our business to read many psychological works—books, papers, pamphlets, etc.—and when thereby we are mystified and confused, which is not infrequent, we turn to this little primer and never fail to resume clear thinking. Some minor critics complain of the pontifical character of our author's utterances, but this is a virtue when contrasted with the incoherent thought and incomprehensibility which is a prominent feature of some psychological writers.

We are led to wonder whether the book we are now reviewing will come to have the same place in our regard as the primer referred to. It may do, but there is this difference. The primer deals with fundamental truths of a broad and comprehensive kind, and is

free from serious controversy. The same, too, can be said of much of the present work, but on the other hand it mainly and admittedly is devoted to a mission, which is to show that "man is essentially a purposive being, and that any psychology based on the assumption that he is merely a mechanical structure is unprofitable and misleading."

Prof. McDougall feels keenly on this matter, and does not hesitate to express his views in forcible though dignified language. His criticism of the mechanistic school of psychology is relentless, and he employs every art he possesses as a writer for its destruction. This means a good deal, for few authors can write so clearly and convincingly. He is even constrained to write emotionally, and in places he rises to a rare height of eloquence, as the following passage shows :

"Let the beginner in psychology who hesitates at the brink of the slope that leads to materialism and a rigid determinism, look round again and critically survey the ground. Let him also look down the slope ; and there in imagination he may see the sturdy figure of T. H. Huxley struggling in vain in his old age to lay the spectre he had so confidently helped to create ; there also he may descry the forlorn figure of Herbert Spencer, once acclaimed the king of mechanists, but now remembered as the author of a "chromophilosophy" of scandalous vagueness. Let him turn and look upward, and he will see the serene figures of Charles Darwin and Newton and Faraday, of Herman Lotze, of Leibnitz and Plato and Wordsworth, and of all the great poets, an august company of great men who refused to 'lay the intellect to rest upon a pillow of obscure ideas,' whose voices still ring down the ages, insisting that Man is more than mechanism and may yet be master of his fate."

That Prof. McDougall is in deadly earnest in his endeavour to discredit any type of mechanistic psychology is shown by the vigour of his reply to the shoal of criticisms which the publication of his book called forth from some prominent American psychologists. The occasion we particularly refer to was a debate between our author and Dr. J. B. Watson on the fundamentals of psychology before the Psychological Club of Washington, D.C., on February 5, 1924, and the substance of his remarks published in *Psyche*, July, 1924, forms piquant reading. His opponent, as was to be expected, suffered a heavy defeat, and we would suggest that in the next edition of this book these remarks could well be added as an appendix.

We now pass on to a description of the book which has roused so much interest and not a little controversy. The book is best considered as having four parts. There is first a long introductory chapter of a critical and descriptive character of the various schools of psychology, all leading to an exposition of the author's views on the nature and structure of mind and his definition of psychology. The second part comprises the chapters dealing with the behaviour in broad groups of animals from the simplest (protozoa) to natural man ; it also includes a chapter on instincts of the mammals and of man. The third part deals with purely psychological matters, such as perceptual thinking, attention, imagining, emotion, etc. ; and the fourth part is devoted to the growth of mental structure.

Now it is quite impossible in the space at our disposal to traverse the immense field of psychological research covered in this work. To thoroughly grasp and absorb its teachings is a task of some magnitude. Not that this is a difficult book to read. On the contrary, we found it of absorbing and unflagging interest, and it could be returned to time after time without failing to find more and more depth of meaning, and we feel sure we have not even now exhausted all the knowledge there is to be gleaned from its pages. We propose, therefore, only to touch lightly on those chapters which will in the main find ready acceptance, and deal in the first place with the more controversial sections, which are undoubtedly those devoted to comparative psychology, especially in regard to behaviour in the various evolutionary stages of the animal kingdom.

By "behaviour" the author means "the action or actions of some living thing." At present he excludes plants, because he is not sure whether the application of the term "behaviour" to them is justified. He points out that when we speak of the behaviour of inorganic things we are merely personifying them—a common tendency in all people. He then argues that behaviour is something more than a response or reaction to a stimulus, and formulates six "marks" of behaviour, which are (1) a certain spontaneity of movement; (2) the persistence of activity independently of the continuance of the impression which may have initiated it; (3) variations of direction of persistent movements; (4) the coming to an end of the animal's movements as soon as they have brought about a particular kind of change in its situation; (5) the preparation for the new situation toward the production of which the action contributes; and (6) some degree of improvement in the effectiveness of behaviour, when it is repeated by the animal under similar circumstances. When movements exhibit the first five of these marks of behaviour, he does not hesitate to regard them as manifestations of mind or mental activity. The sixth mark crowns them all and is conclusive in this respect, but, by itself, it is not a sign of mental activity. Later on he adds a seventh mark of behaviour, *i.e.*, a purposive action is a total reaction of the organism. Some biologists consider this the most important distinction between mechanical reflex and behaviour.

His next argument is that behaviour is always a purposive action or a train or sequence of purposive actions, *i.e.*, a means to the attainment of the desired or resolved end. There are degrees of purposiveness, from impulsive and vaguely foreseen actions to deliberately purposive. To the actions of animals exhibiting the first five marks of behaviours may be ascribed some kind of vague anticipation of the goal. Purpose also implies foresight—a prevision of its effects. In this sense purposiveness seems to be of the essence of mental activity. Finally, it is laid down that the psychologist should and must choose the fundamental categories appropriate to his science, purposive action being the most fundamental category of psychology, just as Newton's laws of motion have long been the fundamental categories of physical science.

This of course is his declaration of war against all mechanistic

psychologists (behaviourists, epiphenomenalists and parallists and others). It seems unnecessary to do more than sketch the mechanical reflex theory first clearly formulated by Descartes. According to the schools of psychology, which have adopted more or less the principle of reflex action as the basis of their conception of mind and conduct, every human action is a mechanical response to a stimulus. The mind is replaced by the brain working on strictly mechanical or physical principles—a conception which has given rise to a crop of soul-less explanations of human and animal activity, of which behaviourism, sensationism, associationism and presentationism are the best known. None of them are strictly biological or have but queer notions as to the meaning of the word "biology."

A little further on purposive and reflex actions are contrasted, and the latter shown to lack characteristic marks of behaviour. The reflex actions lack (1) the spontaneity of behaviour—contrast the walking reflex after a particular stimulus of the brainless dog and the spontaneous walk of the normal dog; and (2) the persistency of behaviour—reflex movements last as long as the stimulus and no longer. (3) The reflex is stereotyped or fixed, whereas purposive movements are indefinitely variable. (4) Reflex movements lack that appearance of seeking a goal, which is common to all behaviour and (5) do not show that preparation for the coming situation, while behaviour suggests anticipation of the future situation. (6) Reflex processes are not improved by repetition as are the movements of behaviour. The behaviour of the brainless dog and frog is discussed, the former in connection with conditioned reflexes. The claim that the reaction in Pavloff's experiment is a reflex and the whole process as purely mechanical is considered as begging the question, for it has not been known to occur in the brainless dog. In this matter C. v. Monakow says that the factor responsible for the reflex flow of saliva on the bell being sounded is a psychic one, *i. e.*, a mnemonic stimulation.

Our summary of Prof. McDougall's views regarding purposive behaviour will be speeded up by a few quotations :

"The study of animal behaviour teaches four lessons of high importance for psychology : (1) It makes clearer the nature of purposive action and reveals its prevalence throughout the whole of the animal world ; (2) it elucidates the very foundations of human nature, by displaying in relative simplicity among the animals the modes of action (namely, instinctive actions) which are fundamental in human behaviour, but which in human life are so complicated and obscured by the great development of our intellectual powers that their full importance is only now beginning to be recognized ; (3) it shows us how we may conceive the structure of the relatively simple mind of an animal, and so gives us a valuable cue for building up our description of the structure of the human mind ; (4) for it reveals some of the stages which the mind must have passed through in the long course of mental evolution from animalcule to man.

"We have to regard the human mind, not as different in kind from the animal mind, but rather as built up on a foundation which is essentially similar to the animal mind, especially to that of the animals nearest to us in the tree of life. We must look for evidence of the persistence of the types of structure and function of the animal mind, remembering that these fundamental structures are overlaid by later evolved structures, and that their functioning is complicated and disguised by the activities of the more recently evolved structures.

"Now, though we have refused to regard the nervous system as identical with the mind, and though we maintain that the mind has a nature, a structure, and functions which cannot be adequately described, represented, or explained in terms of nervous structure and functions, we have to recognize that the nervous system is at least the immediate instrument and servant of the mind, through which it maintains its relations with the rest of the bodily organism and with the physical world about it, as well as with other minds embodied in other organisms. Hence the story of the evolution of the nervous system, which we can reconstruct from the comparative study of existing types, affords valuable, though always indirect and disputable evidence, of the course of mental evolution."

A tropism is regarded as a valid principle, but not all-sufficient :

"Further, movements governed by tropism, when they do not at once attain their natural end, should show none of that variation of direction which is the third mark of behaviour. Yet almost every instance of animal locomotion shows this mark. Even the moth does not usually fly directly into the flame; but more commonly hovers round it uncertainly, as though both attracted and repelled, before he blunders into it.

"It is among the unicellular animals that the tropic principle might, if anywhere, be expected to celebrate its completest triumph. For surely, it may be said, it is absurd to postulate anything of the nature of mind in a tiny speck of jelly, which appears almost structureless under the highest powers of the microscope. Yet we must remember that each one of us, even the most magnificently endowed, begins life just such a speck of jelly. The only difference known to us is that one speck remains a speck, or becomes many similar specks, while the other becomes a man and, perhaps, a philosopher."

As regards the behaviour of protozoa, Prof. McDougall, supported by other observers, holds that all the movements of these simple animals cannot be considered as tropisms and reflexes, but that they can be regarded (provisionally at least) as constituting very simple and lowly examples of purposive actions. This is a far-reaching conclusion, but one, as will be pointed out later, that is essential to the main argument of his book.

As stated above purpose implies foresight, and we find it difficult to imagine purposive action without elements of feeling, emotion or knowledge being at the root of it. The varieties of monocellular organisms are multitudinous. Some, such as diatoms and bacteria, are classified as plants; others, such as rhizopods and ciliates, as animals; while others seem to occupy a position between plants and animals like the flagellates. Then there are motile cells such as white blood-corpuscles. We also call to mind spermatozoa and ova. Are we to think that if the movements, actions or reactions of any of these exhibit Prof. McDougall's first five marks of behaviour, the existence of mental elements is to be implied? Then how are we to envisage the vital activity of those organisms which does not come up to this arbitrary standard? Is it rational or necessary to attempt to draw any hard and fast line between protoplasm which exhibits elements of mind and protoplasm which does not? Would it not be better to say that in the vital reactions of protoplasm are to be found the precursors of the phenomena of mind? We will return to this matter later.

He points out that the mechanist is in difficulty when he comes to explain the behaviour of animals without a nervous system, for the latter is essential to the occurrence of the reflex act, so that the principle of tropism has been taken up with some enthusiasm

in this relation and even extended to those animals with well-developed nervous systems.

Insects are bilaterally symmetrical, and have a simple nervous system consisting of ganglions, which are small groups of reflex mechanisms. Their behaviour is fascinating and readily observed, and here, if anywhere, might be found a combination of reflexes, conditioned reflexes and tropisms sufficient to account for it. Prof. McDougall again comes seriously to grips with the mechanist. Neither the chain reflex nor the tropic theory can account for "homing." Bethe's bold and the only attempt on the part of the mechanist hopelessly fails. Reflex action is response to a stimulus; instinctive action is, in many cases, a response to an object—for example, blowing one's nose on perceiving an odour and irritation. Chain-reflexes are contrasted with chain-instincts. They are not identical. The behaviour of insects shows many clear instances of the blending of intelligence with instinct, and insects are rightly held to exhibit in the richest and purest manner the operation of instinct. Instinctive action and not reflex action is the key to the understanding of human behaviour, and the latter is based upon innate tendencies which are, in all essentials, very similar to the instinctive tendencies of animals. Intelligence serves instinct and its service is essential; without it instinct would be of no avail. Thus instinct and intelligence are always in intimate co-operation—they are not separable. Mr. and Mrs. Peckham's most interesting observations on the behaviour of *ammophila* and the inferences to be drawn from them are discussed. The same relation of instinct to intelligence obtains throughout the vertebrate kingdom, the human species not excepted.

What, then, he asks is "an instinct," and how should the term be used and understood? "An instinct is a concrete fact of mental structure which, in the main, we infer from facts of behaviour and of experience"; and again, "Instinctive activity is normally initiated by an activity of perception, more or less complex; the capacity for this activity is given in the innate constitution of the animal, and is as essential a part of the total instinctive disposition (or instinct) as the capacity to execute the train of bodily movements which catch our eye." As everyone knows, Prof. McDougall some years ago adopted the word "disposition" to denote all the functional units of mental structure, so an instinct becomes a "mental disposition." It is also a complex disposition, one part of which renders possible the perception of the specific object (the key to the instinct), the other "determines the outflow of energy into all the bodily organs that take part in the instinctive activity." This energy may be best spoken of as psycho-physical energy. The excitement of an instinct evokes "an impulse" to action variable in strength both as regards one instinct and several, for one impulse may overcome another when they are simultaneously excited. Instincts are the springs of energy, and all instinctive action depends in some degree upon "appetite." When an instinct is evoked, the reaction to the exciting object is total, and this absorption of the organism is what we called in ourselves "attention," and the

general excitement accompanying the reaction we call "emotion." Prof. McDougall's final definition is :

"We may therefore define 'an instinct' as an innate disposition which determines the organism to perceive (to pay attention to) any object of a certain class, and to experience in its presence a certain emotional excitement and an impulse to action which find expression in a specific mode of behaviour in relation to that object."

In a note he says :

"We might attempt to enrich the definition by placing before the word 'disposition' the adjective 'mental,' 'physiological,' 'neural,' or 'psycho-physical.'" Of these the last is, perhaps, preferable to the others, because it clearly implies that the disposition plays a part in determining both bodily action and the course of experience. If we use the adjective 'physiological' or 'neural,' we should do so with the explicit understanding that it is not meant to imply the mechanistic interpretation of instinctive action."

Contrast this with that by William Paley (1802) :

"An instinct is a propensity prior to experience and independent of instruction."

Each instinct discharges into some motor mechanism and more readily into one than another. Complicated motor mechanisms, *i.e.*, those needed to carry out the spontaneous pecking for food of newly hatched chickens, etc., are to be regarded, not as instincts, but as the instruments of the instincts, and any one instinctive impulse may make use of a variety of motor mechanisms.

A few more words will complete our very imperfect summary of our author's views as to how purposive behaviour, through a long ancestry, going as far back as the unicellular organism, forms the underlying structure of human nature.

It is laid down in this book to be true in general terms that the normal exercise of all its instincts is essential to the vigour and health of any animal. James was wrong when he taught that every instinct was transitory—had its day and perhaps determined the formation of "habits" of action which took its place when it passed away. If there were no habit-formation, it left no trace behind—"All the great development of psycho-therapeutics which has been achieved since he wrote tend to show its falsity."

Prof. McDougall attaches much importance to the specificity of instincts, which is of different degrees both on the receptive or perceptive and executive sides. The more highly specialized the instinct on both sides the less scope there is for intelligence, and the less specialized the instinct the greater the scope for and the demand for intelligence to supplement instinct. This is a view common to most biologists, though its significance is not always appreciated.

Three further extracts conclude our summary of these very important chapters.

"The mind, then, of the individual organism is that which expresses itself in his experience and his behaviour ; and we have to build up our description of the human mind by gathering all possible facts of human experience and behaviour, and by inferring from these the nature and structure of the mind. I say nature and structure, for we may usefully distinguish between these."

He thinks it probable that mind has the same nature whenever and wherever it exists—animals, men and superhuman beings; fools and wise men—but the structure of the mind is peculiar to the individual. It is not profitable to try and substitute brain for mind :

"To do so limits unduly our freedom of thought; it ties us down to one kind of explanation, leads us to absurd consequences (of the kind we have noticed), and, worst of all, is apt to blind us to facts of observation, and biases our interpretation of other facts."

"Psychology clearly is concerned with human nature in its mental aspect, physiology with human nature in its bodily aspect. At present there are many facts of importance to the one science which the other can afford to neglect. If it is objected that this division of labour implies the old view of radical dualism of mind and matter, or soul and body, we reply that it need not and should not carry this implication; that this question of dualism is a metaphysical problem with which science is not immediately concerned, one which it may and should leave undecided; that since no answer can be given to it, science should not hamper itself by accepting dogmatically, or even provisionally, one or other answer."

We are now in a position to state some of the criticisms that have been levelled at Prof. McDougall's position as outlined above.

In a foot-note (*vide* p. 38) he states why he has found it necessary to break away from those who have carried to an extreme the conception he was responsible for—that psychology may be regarded as the positive science of conduct or behaviour. One of the chief exponents of the modern school of behaviourism is Dr. J. B. Watson, whose *Psychology from the Standpoint of a Behaviourist* was reviewed in our pages (*vide* January number, 1921, p. 64). Naturally Prof. McDougall having led the way, his pupils, and there are many, having carried this behaviouristic formulation of the problem of psychology, as they think, to its logical conclusion, are sore at not having carried him with them. He is called a representative of the conservative type of psychology. It is stated that he has returned to religion, and that he clings to the conception that every individual has a soul, and is given to talking of consciousness, sensations, etc., as if they were tangible objects. The religious taunt is met by Prof. McDougall stating that he has preached dualism since 1898, and is a member of the Council of the Society for Psychical Research. Dr. Watson's view of the book before us is that "it represents a lazy arm-chair type of psychologizing," and Dr. K. S. Lashley, no doubt taking his cue from his leader, has described our author as "bouncing back and forth between accurate description and the exhortations of a soap-box evangelist" (*vide Psyche*).

It is not our purpose here to deal with what Prof. McDougall calls "Watsonian behaviourism"—a peculiar American product. A psychology which declines to take into account feeling, desiring, striving, recollecting, imagining, dreaming, in fact all experiences, does not deserve the cognomen of psychology, and can only prove sterile when applied to social problems. It is not a sane form of behaviourism like that contemplated by John Stewart Mill and Dr. Charles Mercier.

They thought of a science separate from psychology—one of behaviour, conduct and character. The former suggested for it the name "ethology" and the latter "praxiology."

Like Prof. McDougall, we see no place for a separate science of "behaviour." It is one of the many sides of psychology, long neglected it is true, but nevertheless essential to it if it is to leave the obscurity of the colleges and take its place with other sciences in helping mankind to a higher and nobler life.

Of all statements in this book none are more true than this:

"The psychologist has, then, to build up his description of the human mind by inference from the observed facts of behaviour, the behaviour of men and animals, and from the observed facts of experience, facts of his own experience observed introspectively and facts of others' experience described and recorded by them."

Who can really doubt the plain fact that though our knowledge of the content of mind comes from introspection, we could not either understand or record it without the mutual observation, language and gesture of social life?

Also to quote our own words (*vide* April number, 1923, p. 236):

"Psychology has come to connote something more than the "science of mind" of the scholar which began with theory and ended where it began—a subject of no practical utility which existed wearily in schools and universities and dead to the pulsating life outside it should have been the exponent of. It is now a living science concerning itself mainly with the external phenomena of mental life, by a study of which only can an insight be gained as to those inner psychic processes whose secret may perhaps always be veiled in hypotheses ever changing with the progress of knowledge. The medical man, the lawyer, the minister of religion, the educationalist, the social worker all have use for the new psychology and its many practical applications."

Criticisms of a different category to those already mentioned are advanced by Dr. Shaw Bolton in his recent Maudsley Lecture on "Mind and Brain" (*vide* p. 360). He regards Prof. McDougall's attempt to *anthropize* the actions of lower animals as utterly mischievous, and is emphatic that "before purposeful action can be regarded as purposive it must first be shown to be possibly or probably such, and finally must be proved to be such." He points out that both intelligent and purposive action as distinguished from purposeful action connotes purpose or intention on the part of the exhibitor. Purposeful action is essential to evolutionary progress, but the intent of purposive action may fairly be attributed to a First Cause, Creator, God, Nature, and that there is no justification for regarding purposeful action as indicative of more than this.

Thus he arrives at the conclusion that instinctive action is mechanical and free from any intent or purpose on the part of the agent, and it is not until the mammalian stage is reached that elementary purposive action appears and evolves with the development of the brain and the unfolding of the mind.

Prof. McDougall's answer to this criticism will be found in one of the several quotations we have given. But it is beyond the scope of our review to go into the history of what is really an old problem, *i.e.*, as to the phylogenic level at which neural and mental phenomena appear.

It is to be remembered that the differentiation of the nervous system is one of the outcomes of the physiological division of labour which occurs with the appearance of the metazoa and higher functional efficiency, and this would imply that the unicellular organism carries the germs of all the subsequently evolved physical and mental potentialities of the animal kingdom. Indeed protoplasm in any form is a vital substance possessing characteristics and presenting manifestations which have no parallel in the inorganic kingdom. To totalize them would be difficult, for our knowledge in this respect is not by any means complete. It is being added to year by year, and it would be foolish to think that the last has been said on the subject and to begin to dogmatize. We know that living tissue possesses the energy common to all matter, but in addition it has what the older school of physiologists called "sensibility," which, though incapable of changing the energy of matter, can and does control the phenomena of energy. As to the energy of matter or the phenomena of energy the physicist has had of late a good deal to say, and the subject may correctly be described as being in a state of flux. However, the so-called sensibility and the energy of matter work reciprocally in living tissue. In fact they would appear to be firmly linked together as a functional unit, which enables the organisms not only to regulate their relationship to environment, but to mould their own organization in forms of increasing complexity, which suggests a striving towards a goal. At the moment we can only say that the phylogenesis of man has been reached. As to the future, many, like Shaw Bolton, speak optimistically; others, however, believe that man has topped the summit and is on his way down the other side.

The phenomena of life throughout are neither chemical nor mechanical, but biophysical. After all, chemical and mechanical forces are only secondary manifestations of the primary, the elementary forces of matter about which our knowledge is not all speculative. Life, however, transcends matter, and we are not disposed to agree that animals at any stage are either God-driven or chemically or mechanically impelled. All the evidence, we think, goes to prove that the energy of matter in living tissues is but a means, an instrument directed by some inherent attribute or quality, which is fundamentally the same in all forms of life. Its final triumph is the phenomena mind, or as Shaw Bolton will have it, mind in the making. The same fundamental law regulating mind and matter applies to any phylogenic level resulting in an evolutionary continuity in the world of organisms, both unicellular and multicellular. Growth and evolution would otherwise be impossible. The forms and manifestations of life are subject to variation as the organisms rise in the scale to meet new conditions and an ever-increasing complexity of environment. They perfect themselves in manifold ways, resulting in the growth of new and better qualities. All vital reactions, whether chemical, mechanical, instinctive or mental, are in a big sense a means to an end, though at the moment carrying out a single purpose.

To return to the point we set out to discuss, *i.e.*, at what

phylogenic level do phenomena of a mental character make their appearance? As we have already stated, this is an old question which has been discussed and written about for years past. We call to mind Binet's *Psychic Life of the Micro-organisms*, Claparède and Lachman's *Études sur les Infusoires et les Rhizopodes*, Jennings's *The Study of the Behaviour of Lower Organisms*, and Romanes' *Mental Evolution*. Maudsley has also much to say about it. Except the latter they are all quoted in a fine book, *Life and Evolution* (1906), by Headley. Mental qualities are attributed to unicellular organisms, including, we presume, bacteria and leucocytes, by these and numerous other observers, chiefly zoologists. Probably most physiologists reject such notions. Animals react chemically, instinctively and mechanically until a certain stage of neuronic development, and then mental phenomena appear. Others would have it that even the latter are only a further development of the reflex mechanisms in combination with tropisms.

Dr. Maudsley says :

"In the lowest forms of animal life nerve does not exist. The stimulus which the little creature receives from without would seem to produce some change in the molecular relations of its almost homogeneous substance, and these insensible movements collectively amount to the sensible movements which it makes" (*Physiology and Pathology of the Mind*, p. 42).

There follows a reference to colloidal energy in inorganic substances, and the opinion expressed is that such energy would suffice to account for the simple uniform movements in the lowest animals. The advent of reflex action is then described, and finally sensory perception and sensori-motor reactions. He complains of the loose way the word "sensibility" is applied, and suggests that—

"So far we have taken pains to distinguish that form of sensibility and reaction proper to the lowest animals, and which might be called irritability; that form of reaction, or reflex action, which is the lowest expression of nervous function; and that form of reaction to which the sensory ganglia minister, and which is rightly called sensorial" (*ibid.*, p. 46).

If physiologists and psychologists would agree upon a defined terminology, what an amount of confusion and perturbation of mind and much argument, both written and spoken, would be avoided, and how much it would conduce to a better understanding between them!

Prof. McDougall's views on this matter are not new, but his "marks of behaviour" have clarified in some measure the situation, and given a logical order to observations and opinions hitherto but loosely constructed. His statement of the case is both original and forcible. Mr. Headley, speaking of the *amœba* having the power of choice, which is his criterion of mind, says :

"It exercises this power whenever it eats. Its favourite food consists of minute vegetables called diatoms, encased in an envelope of flint. When an *amœba* comes in contact with a diatom, he often swallows it. He makes an aperture, a mouth, where a mouth is required, and the diatom passes into his interior. But when he comes in contact with a small grain of flint he does not treat it as he treats the flinty envelope of the diatom. He leaves it alone. We can hardly put this down as a matter of mere chemistry. It is not like the refusal of oil and

water to mix. Nor is his taking of what he wants for food at all similar to the rushing together of the atoms of oxygen and hydrogen to form water."

He claims for micro-organisms memory, intelligence, attention, consciousness, etc., all rudimentary but real enough for their purpose in life. Like Prof. McDougall, Headley speaks of animals poor in instinct being rich in intelligence and power of learning; in many other respects their views closely approximate.

A word of criticism and caution before we close this part of our review.

Headley quite frankly states that in inferring that micro-organisms have minds he is construing their behaviour as if it were human. To use his own words: "If we lived under such conditions and had similar wants, our intelligence would lead us to behave like that." In support of this he says:

"The highest class of intellect which evolution has produced has to investigate the lowest, on the assumption that there is a unity in nature, and that the same principles hold true whether we are trying to understand the psychology of a man or an infusorian."

Von Monakow in a recent monograph, *The Emotions, Morality and the Brain*, attributes "a certain trace of pleasurable or painful sensation to living protoplasm." He speaks of the emotions as the primitive instincts of living protoplasm. Unicellular organisms have the rudiments of his four primary instincts, etc. Instinct is a definite archetype of emotion, and the oldest and best known elemental emotion is the keen desire for air, light and food, etc.

Prof. McDougall for the purposes of the argument in his book cannot afford to let in anywhere in the phylogenic stages of the animal kingdom reflex mechanisms or tropisms as answerable for behaviour, otherwise he would be bound to admit them as a possible hypothesis in regard to the functioning of the human mind, for undoubtedly the relationships between life and matter which go to make up living tissue are fundamentally the same throughout the evolutionary series. At least the balance of evidence seems to favour this conclusion. But, as regards the invertebrates, he exercises considerable restraint in regard to his inferences of mental functions. He deals almost solely with their observed movements, and upon his analysis of these he founds his "marks of behaviour." It is presumed that he would surrender to the tropists and mechanists motivity, which does not show any marks of behaviour. According to his teaching all organisms from the protozoa upwards show marks of behaviour, but not necessarily completely, and only those showing the first five are to be considered as exercising rudimentary mental functions. He substitutes observed behaviour for anatomical structure as the criterion of the existence of neural and mental processes. This may be entirely acceptable in regard to phylogenic levels capable of reacting by gesture and noise, *i.e.*, showing that evidence of feeling and emotion which common sense would tell us is comparable to that we would experience ourselves under like conditions. If anatomical structure is the criterion, then the turbellarian worms show a well-marked organization of the nerve-cells

into exteroceptive and interoceptive systems. Some cells can be seen to contain elements suggestive of adrenal tissue, and still other cells, but less clearly, of other ductless glands in mammals. This would point to the existence of both nervous and hormone activity, and the possibility of emotional reactions at a much earlier stage than, for instance, Shaw Bolton would admit.

However, we are hardly justified in reflecting human motives, feeling and emotions and other mental activities from the observation of merely motor responses to stimuli or of apparently spontaneous motor activity, especially if such activities are not supported by the presence of adequate anatomical organization. In such cases it would be more proper to speak relatively, *i.e.*, human-like or emotion-like or will-like reactions. Maudsley long ago uttered a word of warning, which is applicable in this respect :

"Before accepting, however, this explanation (endowing the spinal cord with sensation and volition) of the obscure by something more obscure still, it were well to realize distinctly how dangerous a practice it usually is to apply deductively to the interpretation of simple phenomena ideas pertaining to the more complex, and how essential a principle of the method of induction it is to follow the order of evolution, and to ascend from the interpretation of the simple to that of the complex. The explanation savours of the old and evil tendency which has done so much harm in philosophy, the tendency to explain the facts of Nature by what we feel to go on in our minds ; because we know that most of our actions take place consciously and voluntarily, we can hardly help thinking that it must be the same in the frog. Might we not, however, as well suppose and hold that positive attracts negative and repels positive electricity consciously and voluntarily, or that in the double decomposition of chemical salts one acid chooses voluntarily the other base ? It is most necessary to be on our guard against the danger of misapplying ideas derived from internal observation of the functions of mind centres to the interpretation of the functions of lower nerve centres, and so of misinterpreting them " (*Body and Mind*, p. 17).

We think it reasonable to suppose that from the beginning of life there is present a vital element (we cannot say more here) which is purposive and bound up with physical agencies, and maintains the same relationship with them throughout the phylogenetic levels. The miracle or mystery of the genesis of the mind commences, not with the appearance of the mammalian, but with the creation of protoplasm. This vital element is responsible for its own further development and for the agencies necessary to its activity. There are doubtless many halting-places during the course of evolution to the highest levels : some branches of life fall by the way ; others reach their acme and decay or remain stationary ; some progress and probably still progress. The human mind, and that intricate and wonderful mechanism, the brain, are twin elaborations of this mystic co-relation. Moreover it must not be forgotten as we have before mentioned that the nervous system only shares with the rest of the physical organization the life and behaviour of the protozoa, and that it owes its specialization to the physiological division of labour which follows the evolution of the metazoa. As Sir Frederick Mott impresses upon us, mental function depends upon a harmonious working of all the organs of the body, and instances the importance of the internal secretions of the endocrine glands to the vital activities of body and mind.

Whether we believe in dualism or not, custom and language deficiencies almost compel us to speak and think of the relationship between body and mind as if we did. As a working hypothesis dualism has many advantages, and broadens the field of psychology. Psychology, in the language of the mechanist, like the teachings of the Freudian school, is a closed book to people generally, and likely to be for many generations. But there is a sane monism just as there is a sane dualism, and we can not afford to neglect either in the scientific endeavour to solve the enigma of life. As a further contribution to this solution this book deserves a high place. If not convincing in its main argument—and opinions will differ on this—it is a book full of sublime thought and inspiration, and will cause any reader to hesitate before he plunges headlong into a sea with no friendly shores and severs his connection with a mental life full of hope and promise and the inspirations of ideals mankind has for ages thought of more value than life itself. By the inductive methods of logic we can prove anything and be rendered incapable of denying the facts presented for our acceptance. But it is well to hesitate when our whole nature and common sense rebels against such an acceptance, and to suspect the premises from which such conclusions are reached. The logical conclusions of the mechanist school of psychology are unthinkable and as yet unproven. The teaching of Prof. McDougall's biological school of psychology may be unproven, but it is not unthinkable, and so long as we remain thoughtful and reverent students of Nature in its broadest sense, and are guided by that intuitive common sense which is our heritage, the truth of the relationship of mind and body and of man to the Cosmos will be found wholesome and acceptable.

J. R. LORD.

(To be continued.)

Skill in Work and Play. By T. H. PEAR, M.A., B.Sc., Professor of Psychology in the University of Manchester. London: Methuen & Co., Ltd., 1924. Crown 8vo. Pp. 107. Illustrations 7. Price 4s.

This little volume is intended to focus clearly and to describe simply the most important problems in the acquisition of muscular or bodily skill. The author points out that everyone who is learning a new game would welcome any suggestion which would curtail his drudgery, shorten, or employ to better advantage his practice periods, and illuminate the weak and the strong features both in his learning and the teaching which he receives. This is certainly true; nothing can be more vexing to us than the incompetence which many of us exhibit in attempting to carry out the correct movements for hitting a ball. We do not know what mistakes we are making, and even when they are pointed out we cannot correct them. Many persons appear to be lacking in a capacity for kinæsthetic discrimination, and, as the author observes, while the

education of sight and hearing has reached noble heights, that of the muscular sense has usually been neglected.

We do not wish to convey the impression that the volume is written merely to provide the ambitious but incompetent golfer or tennis player with the secret of success; rather is it a contribution to industrial psychology, and it is the author's aim to emphasize the fact that the problem of training concerns industry at least as intimately as athletics. Moreover, as he observes, there is reason to believe that at present more intelligence and hard thinking are being devoted to training for athletics than to that of training to acquire muscular skill in industry. He also makes the significant observation that he does not know of a single instance where scientific study of the methods of acquiring and imparting skill in industry has not modified the beliefs and procedures of those who utilize such skill. A survey of the increasing output of research on the subject would certainly seem to suggest that industrial psychology has a wide sphere of usefulness before it in the future.

Prof. Pear states that in "motion study" more benefit will come from concentrating upon the *ease* with which a worker can perform a movement than upon his *speed*. The centre of attention is not to be so much the task as the effort of the worker. It is more important to study the worker than the work, and the following aims should direct such study: (1) Body and mind should be used in the most economical way, by avoiding all possible strain of the muscles and of the nervous system; (2) the new method should meet with the approval of the workers, as a result of their understanding its nature and giving it a fair trial. It should make them feel less tired and more satisfied with their work. He makes, moreover, the interesting and important observation that when ease of movement is aimed at, it is not uncommon for those using the new method to appear to be working more slowly than the others. They are, in fact, doing less work, but producing more articles. It is well known, of course, that the factors responsible for fatigue and output are extremely subtle and complex. Such factors as ventilation, temperature, time of day, motivation, bodily condition, economic position, domestic situation, political views and conflicting stimuli (noises, chattering, etc.) have to be taken into account in individual cases. One important factor in the reduction of fatigue and the creation of satisfaction with the task in hand must undoubtedly be the one considered in this volume, namely, the use of the machinery of the body in the right way. Attention must not only be directed to the task to be performed, but to the best way of doing it. An unsuccessful round of golf is followed by fatigue, and for some hours, perhaps, a distorted attitude to life as a whole. It is natural that this should be so after the assumption of awkward postures, the setting up of unnatural tensions, and a failure to co-ordinate thought and action for a period of several hours. Similar conditions no doubt arise in industry, and it may be that a constant tendency to mal-adjustment on the part of workers is responsible, not only for fatigue, but

also for a bored and discontented attitude towards their work. It has to be remembered that successful and efficient action is worth while for its own sake ; it is pleasurable in itself, and creates satisfaction quite apart from the reward it may bring to the performer.

The application of scientific methods of training in industry, as outlined by the author in this volume, should do much to raise the dignity of manual labour. The value placed on so-called intellectual pursuits as contrasted with manual work is probably a false one. It is clear, from what Prof. Pear writes, that there is plenty of room for the application of thought on the part of the worker and his teachers as to the best means of carrying out their tasks, and there seems no reason to suppose that less intelligence is required in the use of tools than in balancing accounts.

H. DEVINE.

Factors Contributing to the Delinquency of Defective Girls. By JEAN WALKER. University of California Publications in Psychology. Vol. iii, No. 4.

This study of a group of 245 girls referred by the San Francisco Juvenile Court to the Psychological Clinic of the University of California Medical School for examination will be read with great interest by all who have to deal with problems of delinquency. The group selected for study was arbitrarily limited to those who had a mental age of 11 or less on Goddard's scale at the time of the first examination, and the study included the following up of the cases for periods varying from three to eight years.

The data, as a matter of statistics, can scarcely be compared with British records owing to the quite different age to which the respective courts have jurisdiction. Any person under the age of 21 who has committed a specific infraction of the law or who "is in danger of leading an idle, dissolute, lewd, or immoral life" may be made a ward of the California Court, whereas here the Children's Act only confers jurisdiction up to subjects aged under 16, and all attempts in private measures to extend the age for sex offences have failed to pass through the legislature. With such an extension of age and aim it is not surprising to find that the median age of the group investigated was about 17 years, and that all but 6.5 *per cent.* of the girls were sex offenders.

The girls showed a lack of native endowment and very meagre interests in life, together with an emotional activity of a rather primitive kind, and the author concludes that this combination of factors lessened the inhibitions, particularly in sex matters, and rendered the substitution of socially desirable for undesirable emotional activities an impossible task. While poor physical condition in combination with other factors may have contributed to insufficient control in some instances, there was much more evidence that irregular conduct was a direct cause of bad physical condition. There was marked scholastic retardation and the whole group was economically very inferior. It did not, however, appear that the

economic inferiority was a very vital factor in the delinquency, and it was noted that those of the group who had made a monetary success in prostitution were those who had adequate intelligence to earn at least a minimum wage in a legitimate way. The home conditions of the group left little doubt as to why the girls did not conform to accepted standards, especially as the defective are more at the mercy of their environment than are intelligent individuals. As a consequence the author notes that the policy of returning the feeble-minded delinquent girl to the community under the supervision of a probation officer results in failure, the chances of success being *nil* if there have been repeated sexual delinquencies. Such treatment only overloads the officer with hopeless problems. Institutional detention of the reformatory type had no deterrent effect, as relapses occurred directly the girls were no longer under control. The author adds: "We see sexual offences continuing after marriage and motherhood, and we see desertion of the children and failure to provide for them, which indicates that in many instances the unfortunate home environment from which these girls came is being duplicated for their offspring." She is quite definite that in the great proportion of cases the mental status of the delinquents was of a similar type to that of their parents. Wide differences of opinion have been expressed on the question of deficiency as a cause of delinquency. Some, like Goring, have concluded that "the one vital mental constitutional factor in the ætiology of crime is defective intelligence"; others, like White, urge, from the psycho-analytic standpoint, that "many failures which we have been attributing to defective heredity are unquestionably due to bad upbringing." The author's standpoint is that "it is a sterile pursuit to argue as to the relative causative significance . . . the important generalization is that the defective class is more disposed to delinquency through bad influences than the intelligent class and is less able to correct criminal habits once established." Certain points of practical interest emerge from the figures given. A small but definite proportion of the subjects when re-examined after a period of care had shown such an advance in response as to be no longer deemed as defective. In others there was a wide scattering of response, the cause of which is discussed, but as to the significance of which opinions seem to differ. Some regard the scatter as evidence of superadded psychopathy, others hold that the feeble-minded scatter more than the normal; there is, however, a feature which is rarely discussed, *viz.*, How far is this due to intentional or unconscious lack of co-operation between the subject and the examiner in the tests? A certain number, often of the more intelligent, fail because they think the right answer is so simple that no one could ask so silly a question, therefore there must be some other answer at which they guess; and again many try to give not what they think is right, but what they think or hope the examiner expects. Emotionally some 70 *per cent.* of the group were hyper-emotional or hyper-suggestible, a figure which would agree with British experience that the apathetic defective avoids committing offences, save perhaps vagrancy, by sheer inertia, also

that the lower the intellectual level the greater the observed emotional inferiority.

From the histories appended it is clear that for all their advantages in investigation the American Courts are more handicapped in their powers of disposal than are the magistrates of our larger cities, and that the great admixture of only partially assimilated racial elements sets them hard social problems. As regards girls on parole there is a suggestion that might well be noted in this country, *viz.*, "more and better supervised recreation should be provided"; the girl who has nothing to do of an evening is in grave danger; and "an effort to arouse as many wholesome interests as possible might be effective in counteracting unwholesome interests."

F. C. SHRUBSALL.

*The Besford Court Catholic Mental Welfare Hospital for Children.
Seventh Annual Report, 1923-24.*

This report is of considerable interest to all who have to deal with mentally defective or borderline children, as containing a summary of the principles governing the management of the Institution, and a survey by Monsignor Newsome of his experiences in visiting the various institutions in America which handle similar problems.

The school, which is recognized by the Board of Control, the Board of Education and the Home Office, is intended for the higher grades of the feeble-minded and for the unstable child of somewhat higher intellectual capacities. The aim of the staff is not so much to train the intelligence as to form the character of their pupils by encouraging the self and other regarding instincts, emotions and sentiments. For this purpose they make considerable use of communal activities, both in work and recreation, group games, scouting, holiday camps and the like forming a prominent part in the curriculum. The number of pupils has been limited so that each member of the staff may have an intimate personal acquaintance with each of his charges. As is pointed out, a clear clinical picture of each individual case is essential for successful treatment, mental defect not being a clear-cut entity, but rather a vague negative term expressing a certain incompatibility of character to meet the ordinary stresses of life. The Director remarks that for the school to be a success it must be a "home" in every sense of the word, and the staff must solve each individual problem, remembering that the problem is ever being set anew, and that the child's reactions of to-day may re-state the problem of yesterday. The system presupposes that the high-grade mental defective, although different by his defect from the normal, is yet capable to a great extent of living the life of the ordinary boy, and will learn more from example than precept, and by being trusted and tested within the limits of his mind powers. The type of case accepted is, from the description, distinctly on an intellectual level above that which has perforce to be admitted to ordinary schools or institutions controlled by local authorities, so that the opportunities for improvement are

better, and the leaven of the rather more intellectual type would be all to the good. The conditions available seem to approach the ideal, and the steady but not obtrusive religious atmosphere should do much to enable those suffering from adolescent instability to acquire a higher measure of self-control, and this will continue so long as the staff are volunteers on account of real enthusiasm and love for the work.

F. C. SHRUBSALL.

Insanity and Law: A Treatise on Forensic Psychiatry. By H. DOUGLAS SINGER, M.D., M.R.C.P., and WILLIAM O. KROHN, A.M., M.D., Ph.D. Philadelphia: P. Blakiston, Son & Co. Large crown 8vo. Pp. xii + 437. Price \$6.00.

America has recently given us a number of valuable books on medico-legal subjects. This present volume is a notable addition. In the course of this review we shall have to compare American conditions with those in force in this country. And it will save space if we state that by America, in this connection, we mean the United States.

The aim of the book is to assist lawyers and physicians in the solution of their common problems, and to compose the quarrels between the two professions by enabling each to appreciate the point of view of the other. So the authors commence with a description of the various types of reactions, pointing out that the exaggerated types of reactions exhibited by insane persons are simply accentuations of the normal types. As in many recent books on psychological subjects, Freud is not specifically mentioned. And it is becoming clear that the main features of his hypothesis are now generally accepted as established psychological facts. We would mention the admirable descriptions of the paranoid and the schizophrenic personalities. Under the former heading it is shown how the unmodified supremacy fantasy of infancy may produce the fanatic in adult life. We then have a chapter containing brief but graphic descriptions of the various forms of insanity. Specially excellent is the part which deals with dementia præcox. The authors do not appear to accept the view that delirium tremens and the abstinence symptoms in morphinism are due to poisoning by an antidote formed by the tissues as a protection against the drug.

There is a brief but useful chapter on malingering. The relation between simulation and the psychoneuroses is taken up. And it is pointed out that the Ganser syndrome, occurring in the so-called "prison psychoses," is a fear reaction. A gloomy view is expressed as regards the psychiatric conditions existing in American prisons. The authors state that "in jail, expert observation is always difficult and often impossible." This is one particular in which this country may fairly claim an advantage.

The American legal procedure in cases of insanity is described. We are wont to complain of the chaotic condition of our lunacy law. But our system is simplicity as compared with the condition of affairs in America, where each state has its own laws. Twenty-two

states, however, have provision for the reception of voluntary boarders into state mental hospitals. It is interesting to learn that Louisiana retains the system of a "family council," in cases in which guardianship is thought to be desirable; this is, no doubt, a survival of the French origin of that state.

On account of the interest which it has recently aroused, we are apt to think of criminal law as being the only point at which law and psychology come into contact. This is, of course, by no means the case. The authors give a most helpful discussion of testamentary capacity, and of insanity in relation to tort. Under the latter heading, the marked variance between English and American law, in respect of torts committed by insane persons, is indicated.

It is not uncommon to read very sweeping statements as to the supposed ease with which divorce can be obtained in America. And a demand has been made in this country that incurable insanity should be a ground for divorce. It is interesting to learn that only four of the American States have such a statutory provision. Three other states formerly had such statutes, but these have been repealed. In North Dakota, popular clamour caused the repeal of the law in the legislative session following that of its enactment.

As regards the vexed question of "criminal responsibility," the authors observe that it is really dependent upon the view which we take of "free-will." They write from the standpoint of scientific determinism. They reject the conception of "will" as a separate entity. "Volition is the final stage of mental activity in which translation into action occurs, the choice being made by the play of instinct, emotion, and memories." But they urge that the deterministic view should not affect the question on its practical and social side. Whether we regard an offender as a "bad man," or as one who is abnormal mentally, is of no real consequence. In either case, the offender differs from other people. Society is bound to react towards anti-social conduct. The offender is an anti-social person, and as such he must be treated. In some instances this necessary treatment may properly take the form of "punishment." In other instances different forms of treatment are indicated. The authors are inclined to deprecate the adoption of too extended a view of the relation of mental abnormality to crime. But they favour a system under which the jury is required to express a verdict solely upon the facts of the crime itself, leaving the offender's mental condition to be determined, later, by a board of psychiatrists. This would imply that, the offender's guilt having been determined, the board would assign the appropriate treatment. There is much to be said for this system, but there is small prospect of its adoption in this country. The authors urge an extension of the McNaughton rules, on the lines recommended by the Medico-Psychological Association's recent committee. We note that the American system of dealing with insanity developing in an offender after his sentence appears to differ materially from ours.

We learn that in America an employer is held legally liable for injuries caused by the lack of mentality of his employees. This has led to a general adoption of some form of mental examination of

candidates for employment. The authors give some much-needed remarks on the limitations of the Terman scheme of intelligence tests. And the popular conception known as "mental age" is severely criticized.

The chapter on the physician in court should be read by all whose duties call them into the witness-box. Contempt is often poured upon the different opinions which are occasionally expressed by psychological experts. The authors point out that these differences of opinion are not greater, or more frequent, than those which occur with experts in other branches of knowledge. The hypothetical question, in vogue in America, is commented upon. From this we are free in this country.

A wealth of legal cases is quoted. These cases are, naturally, nearly all American. In this particular the book will be more useful to American lawyers than to our own legal brethren. We could wish that English books on this subject contained such ample reference to reported cases.

M. HAMBLIN SMITH.

Psychological Tests in Business. By A. W. KORNHAUSER and F. A. KINGSBURY. Chicago: The University of Chicago Press. Large crown 8vo. Pp. 194. \$1.75.

This little book sets out the main facts in regard to the accomplishments of psychological tests in the field of business, and deals with the selection of personnel for employment, either generally or for specific jobs. It thus differs from most of the British communications on industrial psychology, which are largely studies of fatigue or of optimal conditions and methods of work. The purpose of tests is to aid in selection, and the criterion to be applied to each is—"Does the test enable us to make better predictions as to people's fitness for the job in an appreciably better, cheaper, or more expeditious manner than can be made without the test." If test scores agree sufficiently closely with the known ability of individuals already at work, the test may be used to predict the probable ability of unknown persons of the same general group as those on whom it has already been tried. The authors give a good functional classification of such tests:

1. Tests of proficiency.
 - (a) Educational tests.
 - (b) Trade tests.
2. Tests of aptitudes.
 - (a) General aptitude tests.
 - i. General intelligence tests.
 - ii. Mechanical aptitude tests (performance tests).
 - (b) Special aptitude tests.
 - i. Physical.
 - ii. Motor.
 - iii. Sensory.
 - iv. Tests of special mental functions.
3. Tests of character and temperament traits.

Of these the proficiency tests and the general intelligence tests have been the more efficiently standardized. It is often difficult to be sure what a test tests: for example, an intelligence test may really in part measure proficiency in reading the instructions, while a moral judgment test is likely to be more a test of intelligence than morality. Various tests of habits or moral trustworthiness have been proposed and have certain possibilities, but depend for their success wholly upon the subject not knowing he is being tested—a condition it is rarely possible to achieve.

A very wide range of procedures is discussed from the standpoint of results, not of technique, for which the reader is referred to original monographs, the general conclusion being that they are a useful weapon to the skilled investigator, but that no rule-of-thumb methods of general application are possible. Tests are only a small part of the broad problem of understanding the human factor—the individual worker; any devices which prove helpful in the effort to substitute intelligent understanding and control for guess-work and prejudice will be valued, but one must be sure the conditions are controlled. In these days, when tests are passing into popular usage for purposes for which they were never intended, it is wholesome to see a critical review of their limitations as well as their successes, so that though most of the matter deals with problems of performance rather than of all-round failure, the conclusions must aid those who deal with human derelicts. It must be recognized, though, that the work is not concerned with individual tests or groups of tests as with general methods as applied to a specific problem, the selection of personnel, and that its main aim is to urge standardization and testing of tests and results—a task which is all too little carried out. Far too much is accepted on faith from one area to another, the variations in local conditions which may be all-important being conveniently ignored.

F. C. SHRUBSALL.

Part III.—Epitome of Current Literature.

1. Neurology.

Organic Epilepsy Considered. (*Journ. of Nerv. and Ment. Dis.*, February, 1925.) Gordon, A.

The author gives a brief *résumé* of opinions on the seat of origin of the attacks in organic epilepsy—Marshall Hall's medullary origin, Meynert's origin in the cornu ammonis, Chaslin and Bleuler's cortical gliosis, and Bevan-Lewis, Clarke and Prout's degeneration of the cells in the second cortical layer. Hughlings Jackson considered epilepsy as a three-level affection: The first level, the upper

spinal system, medulla, pons and cerebellum; the second level, the cortical motor and sensory areas, and the corpus striatum; the third level, the pre-frontal lobes.

From a consideration of 33 cases, Dr. Gordon finds that the stimulus may come from any part of the central nervous system, and travel by means of the association, commissural, and projection fibres to the cells of the motor cortex, from which issues the motor discharge. Epilepsy of Jacksonian type may occur in a great variety of organic lesions of the central nervous system, irrespective of the site of irritation. The author concludes that any segment of the brain possesses epileptogenous properties, and that the mechanism of the epileptic convulsion lies in the disturbed function of the motor cortical cells, the impulses of which are influenced by morbid foci in any region of the intra-cranial tissue. His 33 cases covered hæmorrhage in the subcortical frontal tissue; softening in the basal ganglia and internal capsule; ventricular hæmorrhages; hæmorrhage in the occipital lobe; tumours in the cerebellar hemispheres; tumours in the cerebello-pontile angle; tumour of the pituitary gland; dilatation of the lateral ventricles; ependymitis; thrombo-phlebitis in the orbital lobe; purulent meningitis.

G. W. T. H. FLEMING.

A Clinico-pathologic Study of Acute and Chronic Chorea. (*Arch. of Neur. and Psychiat.*, February, 1923.) Wilson, G., and Winkelmann, N. W.

It is pointed out that a case of Sydenham's chorea which Marie and Tretiakoff published in 1920 was probably a case of encephalitis epidemica of a choreiform type, as the pathological findings were identical with those of encephalitis. One of the present writers had had a case of Sydenham's chorea which turned out to be encephalitis.

Harvier and Levatidi, in considering the relation of chorea and encephalitis, conclude that certain acute febrile choreas are brought about by the virus of encephalitis, but it has not yet been proved that all acute febrile choreas are due to this agency.

In Wilson and Winkelmann's case of Sydenham's chorea, at necropsy, there was an acute endocarditis on the auricular side of the mitral valves. There were no changes in the brain that could not be attributed to the acute febrile condition that the patient had before her death. They found no changes such as Marie and Tretiakoff described in their case. In Wilson and Winkelmann's case of Huntington's chorea which was of seven years' standing, with pronounced mental symptoms, they found changes involving the fronto-Rolandic cortex, the meninges, vessels, caudate nucleus and putamen with an escape of the globus pallidus and optic thalamus. There was no secondary degeneration in the pyramidal or extra-pyramidal systems. The small type of cell in the corpus striatum bears the brunt of the pathologic process.

G. W. T. H. FLEMING.

Visual Hallucinations as a Cerebral Localizing Phenomenon, with Special Reference to their Occurrence in Tumours of the Temporal Lobe. (Arch. of Neur. and Psychiat., November, 1923.) Horrax, G.

There are three views as to the areas of the brain responsible for the occurrence of visual hallucinations in organic disease of the brain. The majority of observers, including Henschen, regard the occipital lobe as the offending region. Against this is the fact that the lesions described have been too diffuse and widespread to admit of localization in the occipital lobes alone, and also the fact that in 11 cases of occipital tumour in a series there was no evidence of visual hallucinations. The second theory, that of Pick and Jolly, is that the lesion is in the optic tracts. They produced no autopsy material to support this. The third theory, that of Hughlings Jackson, is that visual hallucinations are due to irritation of higher mental centres and represent a distant effect.

The author is of the opinion that the visual hallucinations in temporal lobe tumours are due to direct irritation or pressure in the temporal lobe itself. Very often these hallucinations are associated with the olfactory and gustatory auræ of a typical uncinæ seizure. In every case where it could be ascertained the visual pathway was involved, and in the 6 cases coming to autopsy, there was also involvement of the optic thalamus. In 8 out of 14 cases the hallucinations were projected toward the side opposite to the lesion in the brain.

G. W. T. H. FLEMING.

2. Psycho-Pathology.

Remarks on the Correlation of Psychological and Physical Symptoms in the Psychoneuroses. (Fourn. of Nerv. and Ment. Dis., February, 1925.) Brown, Sanger.

The author endeavours to blend the psychogenic and physiogenic theories of the origin of the psychoneuroses. He points out the frequency with which evidence of endocrine and vegetative nervous system disturbance occurs. He indicates the variability of the disease, and how at one time physical symptoms such as fatigability, tremors, dizziness and fainting are most prominent, and how at other times mental symptoms like anxiety, compulsive ideas and phobias take their place. He draws conclusions from the huge number of war cases which became available for study. These cases are divided into two groups. In the first group, which is considerably the larger, mental symptoms predominate at the outset, emotional stress developing into anxiety, phobias, etc. These cases in time developed physical symptoms due to vegetative nervous system disturbances, vertigo, fainting attacks, circulatory disturbances, etc. Physical examination showed varying degrees of thyroid, pituitary and adrenal imbalance. In the second group there were symptoms of endocrine disturbance from the beginning. These symptoms were more physical in origin, but in time

disturbances in the mental sphere as in the first group appeared. In both groups the end-result was much the same, the physical symptoms being more marked. The author stresses the fact that mental causes operating through the emotions over a long time bring about a disordered endocrine and vegetative nervous system. In the cases seen in civil life, those of short duration and with mainly mental disturbances must have stable endocrine and vegetative nervous systems. Those of longer duration, with many physical disorders, must have an unstable endocrine and vegetative nervous system.

Some cases are primarily endocrine in origin, but the majority are almost entirely of mental origin. This viewpoint would appear to explain the occasional brilliant results of organotherapy, and the fact that psychotherapy by itself is not usually sufficient. The author pleads for a more extensive study of biochemistry, especially of the endocrine and vegetative nervous systems.

G. W. T. H. FLEMING.

The Comparative Method in Psychiatry. (*Journ. of Nerv. and Ment. Dis.*, January, 1925.) White, W. A.

In the same way as we apply the comparative method to anatomy, so we may apply it to the study of the mind. The comparative method has recently been approaching closely to psychiatry, as shown by the work of Kappers in neuro-anatomy and his theory of neurobiotaxis, which accounts for the position of the medullary nuclei as a result of the study of their locations in a wide variety of animals. In neuropathology Brouwer demonstrated that in multiple sclerosis, and various types of paralysis, it is the younger portions of the nervous system that are more vulnerable to toxic agents. The absence of the abdominal reflex and not the knee-jerk in multiple sclerosis is explained by the relative age of the affected parts.

In the consideration of the functions of the nervous system, the study of decerebrate rigidity can be viewed as an attempt to uncover phylogenetically older portions of the nervous system by cutting off the controlling influences from higher centres. Rosett looks on the epileptic convulsion as the lower centres freed from control of the higher centres—a sort of functional decerebration.

On the psychological side investigators have been much concerned with the content of thought, but much less with the emissive aspects, and the end-products as expressed in muscular motions, attitudes, visceral tonicities, and glandular secretions. These latter aspects were emphasized by Kempf and more recently by Storch.

The only motor expression that has been studied is that of language. Language is an expression of man as a social animal. The language of the child is made up of the child's own contribution, and that due to racial traditions and transmitted by its elders.

In savage races there is a tendency to use a concrete expression

where we would use an abstract one. This supplies the most important difference between child and adult language, and between primitive and civilized language. The Tasmanian aborigines have a word for each variety of gum and wattle-tree, but no word for tree as an abstract thing. They have no words for hard, soft, cold, warm, etc. The Zulus have words for red-cow and white-cow but no word for cow.

Feelings, emotions and instincts sought expression before thoughts and ideas. Language has developed from the concrete to the abstract, much as writing has developed from picture-writing to alphabetic writing. The history of thought as exemplified in the thinking of savages and children shows an ever-increasing complexity. Storch describes it as an advance from feeling, concreteness and perception to reasoning, differentiation and abstraction. In the savage mind the idea of number is distinctly concrete; man began to count by using his hand and fingers. With the Tamanans of the Orinoco, the word for five means the "whole hand," for six "one of the other hand," for ten "both hands," for eleven, "one to the foot," etc. This thinking is perceptual and undifferentiated.

The savage's ideas about himself and his environment show that he regards the woods and the streams as filled with spirits, etc., and that they are capable of influencing him in all sorts of magic ways. In the same way the thinking of children does not clearly separate the ego from its environment; hence the ideas of ghosts or demons, and the occurrence of superstitions.

In schizophrenia the thinking is very much like that of children and savages. Feeling is more in evidence than reasoning, concreteness than differentiation, and perception than abstraction.

Domarus describes the modes of thought in primitive races, and recognizes three stages in development—pre-archaic, archaic-paralogical, paralogical-logical. In the pre-archaic, which corresponds to *Pithecanthropus erectus* and schizophrenic stupor, there is a lowered intensity of imagery, affectivity, and a lack of any real thought process. In the archaic thinking of pre-logical kind, which is found among primitive savage races, the imagery is more vivid than amongst more highly developed races. The effect produced in the observer is projected and believed to be an attribute of the object, which thus acquires a "demonic" character. In schizophrenia there is a similar lack of objectivity, hallucinations and reality are imperfectly distinguished, and every event has a meaning and effect on the observer.

Paralogical thinking is a stage beyond this; identification of objects is based on similarities, not differences. It follows the law of participation of Levy-Bruhl—all things with the same qualities are the same. This form of thought is common in schizophrenia.

According to Storch, the schizophrenic's mental imagery and experiences have a concrete nature where the normal person would only see symbols and analogies. The patient views the world of reality as changed by his delusions, as a new mode of existence; it has lost its identity as something separate from him, and is

experienced as a sort of concrete interpenetration. By the same interpenetration the patient becomes one "with somebody"; similarly he becomes God. To the patient his autistic world is very real. White describes two types of interpenetration of self and the world; in one the whole world may seem to be absorbed in the self, in the other the self is absorbed in the world. For the first type all objects are merely emanations from himself; this thus corresponds to the idealistic philosophy, which regards the phenomena of the world as without material existence, and merely as projections of the perceiving self.

For the second type the sense of being an individual is lost, the self is a dependent part of the surroundings. His thoughts are "taken from him," etc. The difference between the schizophrenic and the normal child at play is simply that the latter is able to return to reality at will. Neologisms, stereotypy and perseveration are common things with children. White concludes by making a plea for a consideration of the relation of the organism to its environment, and to experiences, both phyletic and individual. The use of the comparative method in psychiatry enables us to understand many symptoms which otherwise might puzzle us.

G. W. T. H. FLEMING.

Drug Addiction and its Relation to Crime. (Mental Hygiene, January, 1925.) Kolb, L.

From a personality study of 225 cases the author emphasizes strongly the fact that a criminal addict was in a vast majority of cases a criminal before he became an addict; no opiate ever directly influenced addicts to commit violent crime. The popular idea that narcotic-drug addiction is responsible for much violent crime is shown to be false. Addiction to opium or its derivatives creates two tendencies directly opposed to each other. The immediate effect of excessive indulgence is to soothe abnormal impulses, while the ultimate effect is to create a state of idleness and dependency, which increases the desire to live at the expense of others, and by anti-social means. The addict becomes less a murderer and more a thief. Violent crime would probably be much less prevalent if all habitual criminals were addicts who could obtain sufficient morphia or heroin.

With cocaine the effect is rather different. Up to a point it produces increased confidence and courage, but beyond that point of maximum stimulation it produces uncertainty, fear and anxiety. A criminal who takes cocaine is for the time being more efficient as a criminal unless he takes too much. The so-called "inflation of personality" described as being associated with heroin, etc., is a state of ease, comfort and freedom from pathological tensions and strivings. The "heroin hero" is a myth. Both heroin and morphia in large doses change drunken, fighting psychopaths into sober, cowardly, non-aggressive idlers. In the case of cocaine, during the state of fear the addict might murder a supposed pursuer.

G. W. T. H. FLEMING.

3. Pathology.

Remarks on the Pathological Alterations of the Cortex caused by Psychoses. (Journ. of Nerv. and Ment. Dis., March, 1925.)
Marburg, Otto.

The author refers first to the significance of the meninges for the alterations of the cortex, and considers that this is generally over-rated. A meningeal disease-process will certainly injure the outer layer of the cortex, especially if adherent to it. Under certain conditions this may result in degenerative changes in the tangential layer of fibres, consequent on which the ganglion cells will show degenerative changes. This occurs mainly in general paralysis and some senile cases. In other psychoses there is little damage.

Takase found in cases of manic-depressive psychoses what Marburg calls a coagulation necrosis. Identical alterations only more marked, and joined to an augmentation of lipofuchsin, occur in senile cases. In schizophrenia there is an infiltration with fat—there is a swelling of the dendrites, they fade and break, and a delicate network appears in the cell. In paresis Marburg now shares with Spielmeyer the view that two processes develop side by side, one inflammatory, the other degenerative.

On examining the nerve-fibres, manic-depressive insanity shows least change, the super-radial network only being affected. In schizophrenia, the inter-radial network and occasionally even the radii are affected. In paresis there is a discontinuous myelinal decay with a patchy destruction of the myelin. In senile psychoses there is a widespread atrophy.

In schizophrenia the glia is affected much as are the ganglion cells; in paresis, in some sections, the glia exercises its recuperative function, in others it does not. In manic-depressive insanity the vessels show a pre-sclerotic change; in schizophrenia the vessels are uninjured. Marburg assumes that in manic-depressive insanity as a result of the vasomotor nerve lesion, there is a paralysis of the vaso-constrictors, resulting in a slowing of the circulation, and a pre-static condition preceding stasis. He assumes that such a thing as a vasomotor contracted brain may exist, just as we have a contracted kidney.

The third layer, the layer of medium pyramids, is injured in all cases of psychoses. In paresis, the second layer is pre-eminently affected as well as the third; in schizophrenia, the deeper layers as well as the third. There is a tendency for the process to ebb away as it develops from the oral to the caudal region, so that the occipital lobe is least affected.

Takase showed that circular psychoses attack the region of the frontal lobe anterior to the central gyri and the region of the temporal lobe corresponding to Flechsig's anterior association centre, *i. e.*, the second and third temporal gyri. Marburg says that no association centres exist. The fibres originating from Flechsig's anterior association centre are the fronto- and temporo-thalamic ones, which are closely connected with tone. The second system, the fronto-ponto-cerebellar, regulates (according to Marburg)

dynamic function. The super- and inter-radial fibres, according to Ramon y Cajal, are purely exogenous. Manic-depressive insanity therefore affects the transmission of stimuli from the above-named spheres to the dynamo-tonic centres, which are ordinarily stimulated together with any other of the senses. He regards this mechanism as the equivalent for the tone of sensation accompanying every perception, so that the above-mentioned areas form the centre of affectivity.

Anglade considers the temporal lobe the centre for mania and the frontal lobe the centre for melancholia. Marburg rejects this, and considers that the two states are due to inhibition or release within the affectivity centres, whether by interference phenomena, disorder of the organs of sense, or metabolic alterations of the cells.

In concluding, Marburg emphasizes the fact that dementia is not a lesion of the fore-brain. The whole brain, the fibres more than the cells, is affected.

G. W. T. H. FLEMING.

Blood-Sugar Studies in Experimental Pituitary and Hypothalamic Lesions, with a Review of the Literature. (Arch. of Neur. and Psychiat., March, 1925.) Sachs, E., and MacDonald, M. E.

The authors set out to determine the relation of the hypophysis to sugar metabolism, and what the influence of the pituitary might be on the sugar metabolism of the pancreas.

In summing up the experimental work on the pituitary, the authors find that those who believe the pituitary essential to life failed to note the extent of the injuries to the hypothalamus following their operative procedures. On the other hand, symptoms supposedly due to the removal of the gland have been produced by lesions in the hypothalamus with the pituitary intact, and animals have lived for long periods with the gland totally removed. With regard to the glycosuria produced, there are three groups of views:

First, those who assume a centre in the neighbourhood of the hypophysis, as claimed by Rath, Loeb, and more recently by Aschner.

Second, those who think that the glycosuria is due to secondary changes in the other ductless glands, the pancreas by Pineles, Hausemann and Dallemange, who found atrophic changes, and the thyroid by Lorand.

Third, those who hold that the glycosuria is directly due to the increased production of some substance in the pituitary which is the active agent in producing the condition—Naunyn, and Borchardt, Bernstein and Falta.

It appears that the pituitary alone is not responsible for the glycosuria. The authors point out that during the last few years there has been a tendency to blame the hypothalamic region for diabetes insipidus and adiposo-genital dystrophy, and not the pituitary. Many cases have been described following epidemic encephalitis.

From their experiments on dogs, the authors conclude that complete removal of the pituitary, if the hypothalamus is not

injured, does not lead to the death of the animal. Deaths that did occur were always associated with hypothalamic injury. Polyuria is apparently due to hypothalamic injury. The blood-sugar average in fasting animals is slightly lower after pituitary or hypothalamic operation, but this may be within normal limits of variation. The height of the blood-sugar curve following operation in all cases except those of anterior lobe removal was reached at the end of one hour, in contrast to the curve in normal animals in which the height occurs at the end of half-an-hour. The blood-sugar curve in the cases of anterior lobe removal was of the normal type.

G. W. T. H. FLEMING.

- (1) *Arterio-Sclerosis—Its Nature, Causes and Treatment.* (*Med. Journ. of Austr.*, February 14, 1925.) McPherson, J.
- (2) *Arterio-sclerosis and Mental Disease.* (*Ibid.*) North, H. M., and Bostock, J.

(1) The author in the first place points out that capillary implication must always be remembered. Abnormally high blood-pressure may be due to arterio-capillary fibrosis or to vascular spasm. The latter condition is alleviated by amyl nitrite or nitro-glycerine; the former is unaffected. High protein diet has been accused as playing an important rôle in arterio-sclerosis, as have some of the amino-acids, *i.e.*, tyrosin, giving rise to tyramine, which causes vascular spasm with abnormally raised blood-pressure. Exactly the same effect is produced by guanidin (which is an amino-acid derivative) with its compounds methyl- and dimethyl-guanidin. In considering the effect of caffeine, nicotine, etc., the author points out that confirmed smokers usually exhibit a low blood-pressure. He also points out that the cigarette smoker suffers more from carbon monoxide poisoning than from nicotine poisoning. Caffeine, although it stimulates the vaso-motor centre in the medulla, does not cause a rise in blood-pressure, because at the same time there is a vaso-dilatation by direct action on the vessel-wall. Alcoholic indulgence, even in great excess, cannot produce arterio-sclerosis, the effect of alcohol being to produce a vaso-dilatation and a fall in blood-pressure.

In senile arterio-sclerosis the increase in blood-pressure may be only moderate; there may be even no increase in aged people with very sclerosed vessels.

Prof. Russell says that the first step in the production of arterio-sclerosis is hyper-myotonia, which is appreciable to the finger applied to the radial and brachial arteries. This is the stage of pre-sclerosis, and is due to blood-impurities exerting an irritant action on the arterial wall. The impurities may be from the alimentary canal or from waste products of cell metabolism. The first stage is thickening of the tunica media due to hypertrophy of its muscular fibres. In the second stage, fibrous tissue partly replaces the muscle-fibres of the middle coat. In the third stage, calcification takes place in the thickened and devitalized tunica media. Other authorities maintain that the earliest stage is one

of endothelial proliferation visible in the terminal arterioles. Later the swollen and proliferated endothelial cells undergo fatty degeneration, and occlusion of the lumen results. McKenzie says that arterio-sclerosis is secondary to obliteration of the capillaries. In atheroma the earliest changes are in the intima. Patients suffering from arterio-sclerosis may exhibit giddiness or vertigo. Vertigo may be due to a simple atony of the cerebral vessels, to dyspepsia, labyrinthine disease or a small apoplexy. Ophthalmoscopically "silver-wire" arteries, pipe-stem sheathing, small white cotton-wool exudates of fibrin or even small hæmorrhages may show in the fundus oculi. Arterio-sclerotic patients may have parietic attacks suggestive of cerebral hæmorrhage, but which may be due simply to a condition of vascular spasm and amenable to treatment.

Minute hæmorrhages may be the result of diapedesis, and may be rapidly recovered from, but may be the precursors of an extensive hæmorrhage.

In the matter of treatment the first thing to do is to moderate the amount of food consumed. The opinion as to fluid varies; some advocate flushing the kidneys if the kidneys are healthy, others limit the fluid intake so as not to raise the blood-pressure. Protein diet should not be restricted unless there is evidence of renal inadequacy. It is safest to curtail the amount of purins. Sodium chloride also should be greatly curtailed. Moderate exercise is useful. Small doses of bromide are useful to control the anxiety. Calomel as an intestinal disinfectant with free daily action of the bowels is useful. High-frequency currents may alleviate the headache, insomnia, cold hands and giddiness.

(2) These two authors, out of a series of 568 admissions to the two chief New South Wales Mental Hospitals, Callan Park and Gladesville, found 40 *per cent.* at Callan Park and 37 *per cent.* at Gladesville who showed signs of arterial disease. They relied on systolic blood-pressure and palpability of the radial, brachial and temporal arteries, differentiating arteries (*a*) not palpable, (*b*) definitely palpable, (*c*) markedly thickened, and (*d*) hard and tortuous. They used the division of Clifford-Allbutt into hyperpætic, decreascent and toxic forms.

In the toxic group they included only those due to alcohol and syphilis. Maurice Craig and others' finding of high blood-pressure in melancholia and low blood-pressure in mania was found to be not universally applicable. The authors separated off a group of eight patients all under thirty with confusional states, with a high blood-pressure ranging from 140–180 mm. Hg. associated with considerable thickening of the arteries. In seven bacterial intoxication could be demonstrated.

The authors then considered the factors concerned in the relationship between arterio-sclerosis and mental disease. In the first place the frequency of arterial disease in young subjects with congenital mental deficiency or schizophrenia suggests an effete germ-plasm—an abiotrophy. Cases of premature senility appear to be allied to this. The subject of anxiety and suprarenal over-activity is still *sub judice*. Auto-intoxication by endogenous toxins

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is important. Batty Shaw found in the kindeys substances which had pressor effects on the arteries. To these he gave the name of rennin. Organisms have been cultured from insane patients which produce appreciable amounts of formaldehyde. Loeb found in rabbits that aldehydes of the aliphatic class only were followed by arterio-sclerosis with a high degree of certainty. Drs. North and Bostock found an indican reaction in the urine in 31 *per cent.* of their patients. They say that 80 *per cent.* of habitual drinkers have well-marked arterio-sclerosis, but point out that some of the patients suffering from the more severe forms of alcoholic dementia have arteries that cannot be palpated, and blood-pressures well within the normal limits. In cerebral syphilitics clinical arterio-sclerosis of the decrescent form is much commoner. Taking Hertoghe's eyebrow sign, coarseness of the skin, malar flush, slow pulse, etc., as evidence of hypothyroidism, 51 out of 310 patients at Callan Park were placed in this category. G. W. T. H. FLEMING.

Gastric Secretory Functions in the Psychoses. (*Arch. of Neurol. and Psychiat.*, November, 1923.) Farr, C. B., and Landers, C. W.

The authors found in manic-depressive psychosis that hypo-manic and exalted states favoured gastric digestion, and that depressed conditions caused disturbance of secretion in the direction of diminution. Profoundly depressing emotions have an inhibitory effect (sympathetic) and elation a favourable effect (vagus). In dementia præcox there was no relation between emotional state and gastric secretion. Somatic and hypochondriacal delusions bear no relation to secretory variation. Malnutrition may be a principal factor in causing reduced gastric secretion, but it is more likely that the malnutrition is secondary to the digestive disturbance.

G. W. T. H. FLEMING.

The Protein and Cellular Content of the Cerebro-spinal Fluid. Changes in the Fluid following Intra-spinal, Intra-cisternal and Intra-ventricular Therapy with Swift-Ellis Serum. (*Arch. of Neur. and Psychiat.*, November, 1924.) Young, A. W., and Alpers, B. J.

A study of the cellular and protein contents of the cerebro-spinal fluid in 25 cases in which intra-spinal therapy with Swift-Ellis serum was used, in 21 cases in which the intra-cistern route was used and in 5 cases in which the intra-ventricular treatment was given.

After intra-spinal injection in the lumbar region there occurs a marked rise in the number of cells and total protein after 24 hours, which is still present after 48 hours, but disappears at the end of 6-7 days.

A similar rise occurs in the cells and protein of the lumbar fluid after Swift-Ellis serum by the cisterna and intraventricular routes.

A moderate rise in the number of cells and the total protein in the cisterna fluid is observed 24 hours after Swift-Ellis serum by

lumbar route. This increase disappears after 48 hours. There is no increase in the cells and protein in the ventricular fluid after Swift-Ellis serum by the lumbar route.

The increase in cells, which are mostly polymorphs, is due to the irritative action of the serum on the meninges. The source of the protein is chiefly from the serum introduced, which causes a mild exudative reaction, increasing the production of protein.

The authors consider the appearance of cells and protein in the lumbar region after cisterna and ventricular injection as evidence of the diffusion of the serum downwards. A certain amount of the serum introduced into the lumbar region diffuses upwards, as seen by the increase in cells and protein in the cisterna magna after 24 hours. The authors are unable to explain the mechanism by which the cells disappear from the fluid after two to three days.

G. W. T. H. FLEMING.

4. Clinical Psychiatry.

Neuropsychiatric Sequelæ of Cerebral Trauma in Children. (Arch. of Neur. and Psychiat., October, 1924.) Strecker, E. A., and Ebaugh, F. G.

In a study of 30 children aged 3-16 years, the previous personality and adjustment of the children, immediate symptoms, treatment following injury, type of trauma and the chronological development of the characteristic physical and psychical syndromes were considered.

Amongst the physical sequelæ, headache, often referred to the site of injury, vertigo, marked fatigability in face of prolonged physical and mental exertion, insomnia and extreme sensitiveness to ordinary noises were the symptoms most complained of.

Several complained of feeling worse in a warm room, with flushing, pallor and excessive sweating.

Five children had convulsions of typical generalized epileptic type. Epileptic equivalent states were marked in 2 cases.

In considering the behaviour disorders, the authors divide the 30 cases into two groups—those with a traumatic constitution and those with traumatic defect conditions.

In the first group there were explosive outbreaks at school or at home; several children made threats to kill, in some a manic state was simulated. The whole group were unmanageable in school, and many had had extensive court experiences.

In the second group the clinical nature of the underlying organic defect was revealed by amnesias, periods of confusion and epileptoid states. Mental deficiency existed in 6 cases. In this group there was a progressive loss of mental capacity and ability, leading ultimately to total inability for intellectual training.

From the standpoint of experimental psychology, fatigability was very marked.

In commenting on these observations, the authors draw attention

to the similarity to post-encephalitic behaviour disorders, and the contrast to adult traumatic sequelæ—there is no claim for compensation.

The affective lability, vasomotor changes and epileptoid states are similar. The connection with delinquency is emphasized, also the need for study of these children.

Treatment consists of careful surgical management during the acute manifestations. Rest from physical and mental exertion, removal to a quiet non-irritating environment, study in mental hospitals, more individual consideration in school with special classes and vocational guidance are all of great importance. In patients with Jacksonian seizures appropriate surgical treatment is indicated. The authors find hydrotherapy often useful during periods of mental excitement.

G. W. T. H. FLEMING.

The Prognostic Value of Arterial Hypertension in the Psychoses of Later Life. (Arch. of Neur. and Psychiat., November, 1924.)
Gregg, D.

The author studied a group of 27 cases with an average age of 58 years. He first of all eliminated arterio-sclerosis, nephritis, or cases with a positive Wassermann. The cases were divided into two groups—recovering and non-recovering.

He found that among the recovering cases the blood-pressure of the males is higher than that of the females, as it is among normal people, but among the non-recovering cases the blood-pressure of the males was lower than that of the females. The average systolic blood-pressure in 19 recovering cases was 131 mm. Hg., and in 8 non-recovering cases it was 187 mm. Hg.—a difference of 56 mm.

The author realizes that his cases were too few in number to draw any final conclusions from, but infers that the prognosis is bad if hypertension exists to complicate the situation, but good if no hypertension is found.

He divides the psychoses of the later years into four general types:

(1) Simple functional cases without evident physiologic abnormality.

(2) Functional cases with transient physiologic abnormalities.

(3) Cases with definite physiologic abnormalities, which probably later become—

(4) Cases with definite pathologic conditions.

G. W. T. H. FLEMING.

Remissions in General Paralysis. (Arch. of Neur. and Psychiat., October, 1924.) Raynor, M. W.

In a series of 1,004 consecutively admitted male general paralytics the author considered those cases which could be regarded as improved or as having a remission only. The term "improvement" was understood to mean improvement in the clinical picture during stay in hospital, but with the continuation of some of the symptoms,

to such an extent that the patient was considered abnormal by his family and friends, and was unable to engage in remunerative occupation and keep himself and family. The term "remission" was used to denote a return to physical vigour, an absence of ataxia, tremors of speech and writing defects, and abnormal conduct, together with a reasonably good memory, a certain degree of insight and ability to keep himself and family.

The conclusion is arrived at that half of the number of remissions are not permanent; that remissions may occur more than once in the same case; that remissions are more common in cases presenting a gradual onset with changes in the disposition; emotional instability and defects in orientation and memory than in other types; and that there are no anamnestic, mental or neurologic criteria on which a prognosis for a remission can be based. He found that general paralysis is commoner in Jews, Irish and Germans, and that the incidence of spontaneous remissions in Jews, Germans and Italians is low as compared with that of other races.

G. W. T. H. FLEMING.

Chronic Intestinal Amœbiasis; Clinical Aspects, with Special Reference to Neuro-psychiatric Manifestations. (Arch. Neur. and Psychiat., August, 1923.) Wright, H. W.

In 25 cases of intestinal amœbiasis in ex-service men there were symptoms of a nervous or mental nature, and in some cases with an arthritis. All these cases might have been classed as psychoneurotics, and while it is possible that other factors may have been concerned in the production of the illness, there is no doubt that chronic amœbiasis was the principal. The cases had the following syndromes in order of frequency:

- (1) Neurasthenic syndrome with mental depression.
- (2) Toxic syndrome with myocardial irritability simulating hyperthyroidism.
- (3) Polyneuritic syndrome.
- (4) Arthritic syndrome with reflex nerve pains and deposits in foramina of the vertebræ.

G. W. T. H. FLEMING.

Dementia Præcox and Crime. (Mental Hygiene, January, 1925.) Crounse, D.

After studying 83 cases of dementia præcox seen in the psychopathic clinic, Recorder's Court, Detroit, the author concludes that, as most authors have previously found, the dementia præcox case does not resort to crimes of violence, only 3 of the 83 showing any evidence of violence. Two of these were offences against the person and the other an offence against property with violence. There was only one "offence against chastity."

It seems to be fairly obvious that the individual who is suffering from dementia præcox is incapacitated from adjusting to the complex society of to-day. Since he is not able to adjust, it is

not fair to consider him legally responsible. From both a humane and an economic point of view, hospital care of a permanent nature should be provided for these cases, both to protect them and to protect the public.

G. W. T. H. FLEMING.

5. Treatment.

The Present Status of the Malarial Inoculation Treatment for General Paresis. (Journ. of Nerv. and Ment. Dis., April, 1925.) Lewis, Nolan D. C.

Sixty-eight patients with paretic neurosyphilis were selected from St. Elizabeth's Hospital, Washington, by a board of four psychiatrists, who classified these patients into three groups—A, B, C. The A group was composed of those who were in fair condition mentally and physically, and in whom the diagnosis might be in question in the absence of typical serology. The B group contained those who showed some deterioration, and were more or less rapidly progressing. The C group was composed of advanced cases appearing entirely hopeless from a therapeutic standpoint.

These patients were inoculated intramuscularly with 1-2 c.c. of blood from malarial (benign tertian) non-syphilitic individuals. Chills were allowed to continue from 12-16 paroxysms.

Of the 68 patients, 9 failed to develop malaria after repeated inoculations, 8 were transferred, leaving 51 cases to be examined. Of this 51, 16 developed a complete remission, and were discharged from hospital. In 19 the disease was merely arrested, and has so remained. Twelve progressed to extreme deterioration, *i.e.*, derived no benefit. Thirteen died either during or shortly after the treatment from intercurrent diseases.

Result.	No. of cases.	Group.			Paroxysms.		
		A.	B.	C.	Severe.	Mild.	None.
Complete remission	16	2	9	5	16	0	0
No change . . .	19	3	14	2	16	0	3
Deteriorated . .	12	1	8	3	7	3	2
Died	13	1	6	6	7	2	4
No information .	8	—	—	—	—	—	—

In discussing the results, including those of other workers, Lewis concludes—

1. That paresis must be diagnosed by at least two criteria, one of which is serological, and the other either mental or physical, or both. It is at least theoretically dangerous to add the cerebral pathology of malaria to that of the vascular type of neurosyphilis.

2. Although Reese and Peter advise against attempting to treat weak or decrepit patients, 81 *per cent.* of whom have a syphilitic aortitis, the author found some of his most notable remissions in these cases.

3. A written permission from the nearest relative ought to be obtained.

4. Before inoculation it is as well to determine the absence of quinine idiosyncrasy.

5. If the malaria blood is not injected at once, it should be kept at 37° C. and not shaken.

6. Although many workers prefer the intravenous method, Lewis used only the intramuscular route and found it quite satisfactory. Subtertian malaria must be carefully excluded. Lewis used only donors with a negative Wassermann. Some European workers transfer from one parietic to another.

7. The induced malaria is much more amenable to treatment with quinine than that found in practice. This is probably due to the fact that the cases with induced malaria are treated early in the disease, and the others very much later.

8. Thirteen *per cent.* of Lewis's series failed to develop malaria, 5 *per cent.* of those of Reese and Peter, and in a small tropical group of van Loon and Kirschner, 66 *per cent.* This high percentage was probably due to the fact that the cases had lived all their lives in the tropics.

9. The appearance of icterus, cardiac stress, hæmorrhagic cystopyelitis or active convulsions indicate immediate interruption of the malaria. Reese and Peter lost one-third of their cases, but maintained that they had died from intercurrent disease, except in the case of 7. Lewis is inclined to think that malaria probably hastened their end. In his own series of 51 cases, 13 died, mostly from pneumonic complications and other intercurrent diseases. At autopsy in 4 cases he found reduction in the plasma-cell and lymphocyte infiltration of both meninges and perivascular spaces.

There was far less exudate than is found in the average parietic. In two of these brains spirochætes were not found, in the other two a few were demonstrated. According to Wagner v. Jauregg, the cases dying in remission after malarial treatment resemble the stationary paralysis of Alzheimer with almost complete absence of the usually found progressive picture. According to Gerstmann, the pathologic changes after complete malarial remission were so poorly developed compared with those ordinarily found, that there would have been difficulty in making an anatomical diagnosis without previous history of the case. Gerstmann found greater infiltration of the temporal lobes with exudate as compared with other cortical areas, and suggested a possible connection between this fact and the frequent occurrence and persistence of auditory hallucinations.

10. In the treatment of the malaria, Muhlen's scheme has given the best results. 0.5 grm. quinine hydrochloride is given orally twice daily for a week, then a week of quinine-free days is passed, after which are instituted alternate periods of three days' treatment with 1 grm. per day, and six days free from quinine, until 15 grm. have been taken. If, in certain cases, immediate cessation of paroxysms is desired, intravenous or intramuscular injection of 1 grm. of quinine urethane is employed.

11. Evidence has been offered by Barzilai-Vivaldi and Klauders that inoculated malaria is not transmissible by *anopheles*. Sexual

forms (gametes) were almost entirely absent from the blood of inoculated patients. They attempted to transmit by *anopheles* but failed, although the same patients were inoculated by the direct method afterwards. From this these two authors conclude that there is little danger of spreading infection by this treatment.

12. Amongst results published by other workers, Yorke and Macfie in 84 cases found no noticeable mental or physical change in 20. In 10 there was definite physical improvement, but no mental improvement. In 17 there was great physical and distinct mental improvement. In 23 the mental and physical improvement was so great that the patients were discharged from hospital; 14 died. The maximum of improvement does not show at once; the improvement continues, and it may be some time before the full results are obtained. Reese and Peter present the results from Nonne's clinic. In a series of 75 cases they divide their cases into three groups. In Group 1, 38 showed definite remissions with ability to carry on their work or profession. In Group 2 are 15 cases which were practically cured. In Group 3, 22 cases were not influenced by treatment; 3 of these were cases of juvenile paresis. Twenty-five of their whole series of 270 died. In their experience the best remissions were noted in the manic-agitated type and the worst in the demented forms. MacBride and Templeton treated 16 cases—11 early and 5 advanced. Of the 5 advanced cases, 1 died and 4 showed some degree of mental and physical improvement. Of the 11 early cases, 2 died of the fever, 3 showed marked mental and physical improvement, and 1 became worse. Merzbacher found in 15 cases 4 showing pronounced benefit; these had been treated by antisyphilitic methods for a long time without results. He obtained 50 *per cent.* remissions. Scherber and Albrecht used malaria in those patients who showed only the serology without other clinical symptoms and got good results. Reese and Peter used some mercury following their treatment, but avoided the use of arsphenamine, which they thought to have an unfavourable effect during psychic convalescence. Gerstmann does not consider that subsequent treatment with salvarsan is at all essential. He considered the types giving the best results are simple dementia and taboparesis. Pilcz included the cases of maniacal excitement. The development of acute mental symptoms in the course of the fever is regarded as favourable.

13. The following spinal fluid and blood changes mentioned by Reese and Peter are confirmed by others:

(a) Prognostic deductions from the fluid examination are impossible.

(b) There is no parallelism between improvement and spinal fluid findings.

(c) Generally an influence on the albumen and cell-count is noted.

(d) In some cases the fluid and blood Wassermann becomes negative (10 *per cent.*).

(e) Many cases show no spinal fluid changes although otherwise in excellent remission.

14. Other striking objective improvements are :

- (a) Restoration of ability to work.
- (b) Complete insight and restoration of judgment.
- (c) Pupils usually improve, but rarely show complete restoration of the light reflex.
- (d) Severe speech and writing disturbances clear up.
- (e) Marked recession of pyramidal tract disorders.

15. Lewis offers the following comments as representing attempts to explain the manner in which malaria exerts this beneficial result :

- (a) There can be no specific reaction, otherwise several other infectious diseases and fevers would not produce a similar response.
- (b) The fever alone is not responsible, as good remissions often follow slight rises in temperature.
- (c) Mueller's explanation ought to be seriously considered. He believes that changes in vascular tonus occur in various parts of the body, vaso-dilatation leading to local hyperæmia and transudation, which reactions are accompanied by invasions of polymorphs and escape of serum.

In summing up Lewis says that the results are strikingly better than those gained by any other method applied to the treatment of parenchymatous syphilis.

G. W. T. H. FLEMING.

The Technique of Progressive Relaxation. (Journ. of Nerv. and Ment. Dis., December, 1924.) Jacobson, Ed.

Progressive relaxation is a new method to bring quiet to the nervous system and the mind. Nervous people usually react to a sudden noise with a general start, sometimes of the whole body. Experimentally it has been found that the individual, when tense, reacts with a violent start, and when relaxed, with a much less start, or even none at all. When afferent impulses are quieted through an increasing general relaxation the mind becomes correspondingly quiet, and if the process is carried far enough, the individual falls asleep.

Progressive relaxation is a matter of nervous re-education, and requires the co-operation of the patient. The patient lies on his back on a comfortable couch or bed, in a quiet room. He is taught to recognize the presence of muscular contraction and shown how to relax his muscles extremely. When being taught to relax any particular muscle group, he makes sure of relaxing all the other groups he has previously been taught to relax. A beginning is usually made with the arm, and the patient is taught to relax beyond the point at which the arm seems to be fully relaxed. The keynote to success is repetition. Instruction in relaxation consists in preventing the beginner from doing the wrong thing. To quiet the mind requires simply, according to the author, extreme progressive relaxation of the muscles of the eyes and the speech musculature. Further experimental results are promised.

G. W. T. H. FLEMING.

- (1) *Tryparsamide in Syphilis of the Nervous System: Preliminary Report.* (*Arch. of Neur. and Psychiat.*, January, 1925.) Schwab, S. I., and Cady, L. D.
- (2) *Results of Administration of Tryparsamide in Syphilitic Disease of the Nervous System and in Certain Other Diseases of a Non-Syphilitic Character.* (*Ibid.*, January, 1925.) Kennedy, F., and Davis, T. K.

Tryparsamide, which is the sodium salt of N-phenyl-glycinamide-p-arsonic acid, acts by reason of its ability to increase the defences of the body and not by any direct spirochæticidal action. It belongs to a group of drugs, all of which seem to have an affinity for the optic nerves.

The first report deals with 97 cases of neurosyphilis, including every variety, but with tabes or general paralysis in preponderance. Cases with optic atrophy were at first excluded, but subsequently included.

Tryparsamide itself appears to be quite harmless as far as any general effect on the patient is concerned. There was no rise in temperature and no constitutional reaction whatsoever. About 27 per cent. showed visual disturbances, usually after the second dose. Generally the complaint was of dimness of vision, and there was a peripheral narrowing of the visual fields. In severe cases there may be scattered, and at times central scotomata. In the majority of cases no symptoms except the dimness of vision have resulted. Of thirteen patients who had optic atrophy and were treated, four became worse, and nine have shown either slight improvement or their condition is stationary.

The author, taking advantage of the spirochæticidal action of arsphenamine, combined the effects of the two drugs by giving a preliminary course of arsphenamine and mercury, and then tryparsamide and arsphenamine in alternate weeks, or at such intervals as seemed to suit the individual patient. Treatment with mercury is kept up during the whole time unless contra-indicated. The dosage was based on Brown's figure of 50 mg. per kilogramme of body-weight.

The author obtained a clinical improvement in an average of 85 per cent. of all groups. In most cases serologic improvement, once it appeared, remained during the period of observation. In the general paralytics, the improvement in the manner, speech and behaviour was very marked. In the cerebrospinal fluid there was an alteration of the paralytic curve type, a lessening of the number of lymphocytes and a decline in the Wassermann.

The authors of the second report gave tryparsamide in 3 grm. doses at weekly intervals for eight weeks, and mercury at the same time in the recent stages of treatment in seven of the cases. Their cases of neurosyphilis comprised—tabes 13 cases, general paralysis 7 cases, meningo-vascular syphilis 9 cases, tabo-paresis 1 case, mental defect with central syphilitic stigmata 1 case. Their

conclusions were that the results with tryparsamide compare very favourably with the best results from other forms of treatment. The results were best in the cases of general paralysis. There was a favourable influence on the root-pains of tabes in a surprisingly large percentage of cases. The serologic changes relate chiefly to the cell-count and colloidal gold curve. The Wassermann in both the blood and the fluid is more resistant. It appears possible and easy to prevent optic nerve changes by proper control of the dosage: 3 grm. is the maximum dose and 2 grm. the optimum, according to these authors. Leakage into the tissues does not cause cellulitis. The drug should not be used on patients when ophthalmoscopic examinations cannot be regularly carried out.

G. W. T. H. FLEMING.

Insulin and the Mental State of Depression. (*Arch. of Neur. and Psychiat.*, November, 1924.) Cowie, D. M., Parsons, J. P., and Raphael, T.

The characteristic glucose utilization curve of the depressed phase in manic-depressive psychosis is made to conform to that of a normal person or is completely flattened out, or is made to approximate to that of the agitational phase by the subcutaneous injection of insulin.

The amount of insulin necessary to accomplish this varies with the clinical state of the patient.

There seems to be evidence that the degree of depression may be measured by the amount of insulin necessary to bring the glucose utilization curve to that of a normal person.

The amount of insulin necessary to bring the curve to normal is a measure of the factors opposing the utilization of glucose.

G. W. T. H. FLEMING.

The Nature of Certain Functional Nervous Disturbances and their Treatment along Metabolic Lines. (*Arch. of Neur. and Psychiat.*, February, 1923.) Pemberton, R.

In the course of observation of 1,000 cases of arthritis, Pemberton found many symptoms commonly referred to as neurasthenic, *viz.*, fatigue, mental lethargy, headache and migraine, vertigo, tinnitus, etc. In the course of treatment many of these symptoms disappeared. The author points out that dysentery may closely resemble focal infection. He emphasizes a fact which is not generally well enough known and appreciated, *viz.*, that various breaks in a long chain of physiological processes may give rise to symptoms resembling those of a focal infection. Generally speaking there appears to be an interference with oxidative metabolism, by which is meant the delivery of oxygen, the removal of the products of

oxidation, or both these processes. Some of the laboratory findings, such as lowered sugar tolerance, changes in blood-gas equilibrium, increased values for blood creatin and possibly changes in the reaction of the sweat may in the absence of a clear clinical picture serve as indicators of the pathology concerned.

The author suggests treatment (apart from that of a focal infection) by adjusting the metabolic load by diet.

G. W. T. H. FLEMING.

Treatment of Psychotic Patients in Institutions in the Light of Psychoanalysis. (*Journ. Neur. and Psychopath.*, February, 1925.)
Barkas, M. R.

In this paper the author attempts to explain the rationale of the institutional treatment of mental disorders in accordance with the theories of the Freudian school. The regressive phenomena in psychoses consist of a retirement from the reality to the pleasure principle, a retreat from object relationships to gratification of the person by infantile methods, and a disintegration of the personality. A certain routine method of the treatment of psychotics has been evolved empirically, which may be justified in the light of recent investigations of psychoses by the psycho-analytic method. In the first place, conflict and stress may be lessened, if not entirely eliminated, by the removal of the patient from his normal surroundings to an environment in which effort is no longer expected of him. In entering an asylum the patient literally seeks a "refuge"; he becomes again as a little child whose bodily needs are provided for by a paternal organization, at whose head is the medical superintendent, the All-Father of a large and heterogeneous nursery. The patient tends to form father and mother images in the persons of the medical and nursing staff, who must therefore be on their guard in word and deed to act ideally *in loco parentis*. It is suggested that some of the recoveries in psychoses after acute physical illnesses are due to the establishment of a favourable transference between the patient and staff during the patient's period of infantile helplessness on his sick-bed. Perhaps even uncleanness and depravity may successfully be sublimated if the underlying mental mechanisms can be investigated and understood. Dr. Barkas concludes with a well-needed warning that the dependent attitudes must not be allowed to persist, so that lack of initiative becomes chronic. We have yet to learn how far some types of long-standing dementia præcox are the product of institutional methods.

While the symbolic outlook of the Freudians and their infinite capacity for drawing parallels may not meet with general approval, this paper may help those who have charge of cases in institutions to rise above routine, and to pay greater attention to the individuality of their patients. A little imagination often acts like the gilt on the pill, and renders attractive tasks that might otherwise prove wearisome and uninteresting.

W. S. DAWSON.

Use of Tryparsamide in Neuro-syphilis. (Amer. Journ. Med. Sci., August, 1924.) Lorenz, W. F., Loevenhart, A. S., Reitz, T. F., and Eck, C. P.

Results of Tryparsamide Therapy in Syphilis. (Journ. Amer. Med. Assoc., vol. lxxxiii, 1924, p. 889.) Moore, J. E., Robinson, H. M., and Lyman, R. S.

Results of Administration of Tryparsamide in Syphilitic and Other Diseases. (Arch. of Neurol. and Psychiat., vol. xiii, 1925.) Kennedy, F., and Davis, T. K.

Comparison of Tryparsamide and other Drugs. (Journ. Amer. Med. Assoc., September, 1924.) Solomon, H. C., and Veits, H. R.

Tryparsamide in Syphilis of the Nervous System. (Arch. of Neurol. and Psychiat., vol. xiii, 1925.) Schwab, S. I., and Cody, L. D.

Treatment of General Paralysis and Tabes by Tryparsamide. (Lancet, May 23, 1925.) Dawson, W. S.

Workers in America appear to be unanimous as to the beneficial results of tryparsamide therapy in neuro-syphilis. The drug is prepared by the Rockefeller Institute and has been in use for about three years. Lorenz *et alia* report 37 (41 per cent.) of paretics restored mentally, and 38 (42 per cent.) improved. In 50 per cent. of cases of paresis and meningo-vascular syphilis the blood Wassermann became negative. A paretic type of Lange curve was often converted to a luetic reaction. Early cases of paresis appear to derive the most benefit from treatment. Many cases improved with tryparsamide who had had other arsenical preparations without benefit. The one drawback is a tendency to amblyopia which may rarely be permanent—a complication which was not infrequent with soamin. It is remarkable that tryparsamide produces little effect in early or late non-nervous syphilis. Kennedy and Davis gave tryparsamide in multiple sclerosis and in epidemic encephalitis without definite result, but were favourably impressed with its effects in paresis and tabes. Schwab and Cody obtained a serological improvement in 93 per cent. of cases of paresis, and a clinical improvement in 85 per cent. They advocate a combination of salvarsan, tryparsamide and mercury.

In this country the drug has been available only since the middle of last year. In a series of 20 cases treated at the Maudsley Hospital, eight weekly injections of 2 grm. each were administered intramuscularly as a course. In this quantity no untoward effects were noticed. In America it is more usual to give doses of 3 grm., but there is a greater risk of amblyopia. Of the 20 cases, 13 showed definite clinical improvement; in several there was a reduction of the Wassermann reaction in the blood and cerebro-spinal fluid. In two paretics the cerebro-spinal fluid became negative after two courses of injections. It is remarkable that clinical and serological improvement may continue for some weeks after the cessation of treatment. The therapeutic effect appears to be intensified when bismuth is administered in addition; this is now being done as a

routine. The drug appears to be of considerable value, but judgment must be suspended until a longer series of cases have been observed over a prolonged period.

W. S. DAWSON.

6. Pathology.

Changes in the Endocrine Glands and Brain in Schizophrenia [Über Veränderungen Endocriner Organe und des Gehirns bei Schizophrenie]. (Zeitschr. für die ges. Neur. und Psychiat., March, 1925.) Münzer, F. T., and Pollak, W.

Anatomical Investigations in Dementia Præcox, with Special Reference to the Optic Thalamus [Über anatomische Untersuchungen bei Dementia Præcox mit besonderer Berücksichtigung des Thalamus Opticus]. (Ibid.) Fünfgeld, E.

Binucleated Thalamus Cells in Schizophrenia [Doppelkernige Thalamuszellen bei Schizophrenie]. (Ibid., April, 1925.) Marcuse, H.

The first paper contains a detailed description of a full investigation of a case of six months' duration who died from suicide by precipitation and was autopsied within three hours of death. There was a psychotic family history, including an elder brother who was an undoubted schizophrenic. The case was a single woman of 32 who had been intelligent and capable, and had not shown any mental abnormality up to six months before death, when she developed paranoid ideas of a somewhat fantastic nature and also displayed katatonic signs. The fact that she was physically healthy, the manner of her death and the rapidity with which the organs were preserved rendered her an unusually favourable subject for investigation. The exclusion of tuberculosis was specially fortunate. With the exception of fractures and numerous injuries to internal organs there was no gross disease. The following is a summary of the microscopical findings:

There was a general excess of lymphoid tissue in the stomach, rectum, spleen, tonsils, thyroid, liver, uterus and salivary glands.

Pituitary.—In the anterior lobe excess of basophil cells and gland parenchyma. In the posterior portion also numerous basophil cells and a decrease in the amount of pigment. There was a well-marked fissure in the *pars intermedia*.

Thyroid.—Abundance of gland tissue with excess of lymphoid nodules. The *parathyroids* were fatty with few eosinophil cells.

Adrenals were large, the cortex was full of lipoid and contained numerous adenomatous nodules. In the medulla the chromaffin tissue was well developed.

Pancreas showed a decrease in the number of islets to about one-half the normal.

Ovaries contained a large number of *corpora fibrosa*.

Central nervous system.—Chronic meningitis (diffuse thickening and slight opacity of membranes). Widespread degeneration of the cortical neurones. Changes of a somewhat acute nature were evidenced by a marked increase in the amount of lipoid and by glial overgrowth, especially in the cornu ammonis. The cell protoplasm was fragmented and cells were seen in all stages of degeneration. The cell changes were well marked in the parietal and temporal lobes.

The authors emphasize the presence of an excess of lymphoid tissue in this case, and cite the findings of other workers in support of a lymphatic constitution in dementia præcox. The work of

Sir Frederick Mott, Dr. Emslie Hutton and Dr. Isabel Robertson on the endocrines is mentioned at some length. There is an interesting discussion on the relation between the endocrine and cerebral changes. The authors consider that in this case there was a constitutional defect associated with disturbances of the glands of internal secretion and a general dyscrasia. The brain became affected through some toxic agency and further pathological changes were induced throughout the whole organism. But the constitutional factor is the most important. The paper is concluded by a lengthy bibliography.

Dr. Fünfgeld investigated 5 cases of typical long-standing schizophrenia with special reference to the optic thalamus. There was a careful examination of all regions of the brain. He describes two forms of degeneration in the cortex—a sclerosis with lipid accumulation, and a degeneration which is accompanied by fatty changes. All five cases showed well-marked changes in the cortex, but the pathological appearances that were present in the thalamus, *viz.*, lipid accumulation and glial overgrowth, were such as might be found in any physical disease which terminates in severe emaciation, and cannot be considered peculiar to dementia præcox.

In previous investigations Dr. Marcuse had found that the ganglion cells of the thalamus showed a higher grade of pigment degeneration than the cells of the corpus striatum and the cortex. This led the author to study the thalamus more carefully. The changes in dementia præcox for the most part took the form of fatty degeneration, with displacement of nuclei and other signs of some destructive process in the cell protoplasm. The vessels were surrounded by the products of disintegration and the glia cells were also involved in the process. These changes may all be found to a lesser degree in other diseases, but appear to be specially well marked in dementia præcox. The presence of numerous bi-nucleated ganglion cells in the thalamus seems to be peculiar to dementia præcox, and may prove to be an abnormal persistence of infantile and undeveloped forms.

All three papers are well illustrated by micro-photographs.

W. S. DAWSON.

7. Sociology.

A Study of Certain Auto-Erotic Practices. (*Mental Hygiene, January, 1925.*) Davis, Katherine Bement.

Dr. Davis presents the second instalment of her research on this subject, the first part of which was summarized in our January issue. The figures upon which this second part is based were obtained from the answers to a *questionnaire* returned by 1,073 married women. Most of these women would appear to have had a superior education, although not all were college graduates. Nearly 40 *per cent.* of the married women had never been gainfully employed outside the home. Of those who had been so employed, the great majority had been teachers.

In the present *questionnaire*, masturbation was much less strictly defined than in the paper issued to the unmarried women, being described as "handling of the sex organs to produce pleasure." In spite, however, of this more elastic definition, only 38 *per cent.* of the women admitted the practice at some time during their life, as compared with a percentage of 60 in the unmarried women. This difference is suggestive, but the number of subjects is too small to allow of any definite conclusions being drawn. The relative proportions of those who had discovered the practice accidentally and those who had been instructed in it by others do not differ greatly from those found among the unmarried women. There was a difference of 15 *per cent.* between the graduates and non-graduates who had commenced the practice before the age of 12 years, the lower percentage being among those who proceeded to college later. This would seem to point to the conclusion that intensive study at an early age makes a difference in this particular respect.

Only 116 of those who replied to the questions said that their marriage had proved unhappy, and most of the subjects found that there was a greater stability in their physical health after their marriage. Some interesting tables are given as to the reaction of the women to sex relations after marriage, and the figures are correlated with those concerning the practice of masturbation. In 62 cases the practice was continued after marriage.

There were 71 cases who admitted having had sexual intercourse before marriage, and 163 who had homosexual relations with physical expression (but of these latter cases only 92 said that the experience was associated with sex at the time). The figures are of interest, but no conclusions should be drawn from them, nor does Dr. Davis attempt to draw any. The whole question as to the value of information derived from answers to such *questionnaires* must be carefully considered. There is always a doubt as to whether it is not the more or less "abnormal" subjects who alone are likely to reply to such questions. But this implies no reflection upon the admirable care with which Dr. Davis has worked up the material at her disposal. We understand that the research is to be re-published, with the addition of typical case-histories. The whole paper is a model for future work on these lines. We must again express regret that no attempt was made to ascertain the nature of the fantasies which always accompany the practice of masturbation.

M. HAMBLIN SMITH.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE Quarterly Meeting of the Association was held at the Rooms of the Medical Society of London on Thursday, May 21, 1925, Dr. M. J. Nolan, President, in the Chair.

The Council and Committees met earlier on the same day.

MINUTES.

The minutes of the last meeting, having already appeared in the Journal, were accepted and signed.

AMENDMENTS TO THE ASYLUMS OFFICERS' SUPERANNUATION ACT, 1909.

The PRESIDENT said that, arising out of the minutes, there was the important question of the emendation of the Asylums Officers' Superannuation Act, 1909. A number of the bodies interested considered this matter, and that day the Parliamentary Committee submitted to the Council a *précis* of the amendments and alterations which were suggested. These the Council approved, and it now remained for the general meeting to indicate its pleasure in the matter. He asked the Secretary of the Parliamentary Committee to give the meeting a short abstract of them.

Dr. BROOKS KEITH said the amendments had been drawn up and dealt with by the Conference on this subject, and the suggestion was that these should be incorporated in a Bill to be introduced into the House by a Private Member.

Summary of Provisions of Amending Bill.

It is suggested that the Bill might be presented in three parts, *viz.* :

- (1) Provision to amend the Principal Act.
- (2) Provision to include the Royal Asylums of Scotland.
- (3) Power to amend the Asylums and Certified Institutions (Officers' Pensions) Act, 1918, regarding classification of officers and servants of mental defective Institutions.

The proposed amendments to the Principal Act are briefly as follows :

1. Age of retirement to be 50 in the case of females in both Class 1 and Class 2.
2. Power to be granted to Visiting Committees to grant a special superannuation allowance or gratuity to established officers and servants incapacitated through illness as well as injury, and the maximum gratuity to be increased to 2 years' salary and emoluments.
3. The widow or dependent children to be entitled to a gratuity as follows :
 - (a) If employee dies before completing 10 years' service, a sum equal to the amount of his aggregate contributions under the Act.
 - (b) If employee dies after 10 years' service, one year's salary or wages and emoluments.
 - (c) If employee dies after 15 years' service, one and a half years' salary or wages and emoluments.
 - (d) If employee dies after 20 years' service, two years' salary or wages and emoluments.

N.B.—Discretionary power to be given to Visiting Committees to award gratuities in cases of dependents other than widows or children (*e.g.*, mother, sister, etc.).

N.B.—Discretionary power for Committees to pay the gratuity either in a lump sum or in instalments spread over a period not exceeding three years.

4. Where a pensioner dies within two years of being pensioned the widow or dependents to receive the difference between the superannuation allowance which he has received and two years' pension.

5. All service to count towards pension whether continuous or not, and whether rendered at one or more institutions. The provision for sanction to remove to be deleted.

6. Section 7, which requires a pensioner to forfeit part of his pension on obtaining a subsequent appointment, to be deleted, *i.e.*, under the present Act if a pensioner obtains a subsequent appointment he is not entitled to receive more of his pension than together with the salary of his new appointment is equal to the salary, etc., of the appointment in respect of which his pension was granted.

7. An employee to be entitled to return of contributions on losing his office from any cause whatever, except by dismissal in consequence of an offence of a fraudulent character or of grave misconduct, but in the case of voluntary resignation this entitlement is to apply only after five years' service, and in the case of marriage after three years' service.

N.B.—Discretionary power to be given to Visiting Committees to return contributions in cases of voluntary resignation under special circumstances to persons leaving with less than five years' service.

8. No officer or servant to be permitted to continue in the service after the age of 65 unless the local authority pass a special resolution to the effect that his retirement will cause inconvenience to the service, in which case he may continue for a period not exceeding a year—and so on at the termination of each successive year of his age.

9. In the case of employees in the M.A.B. service who may be transferred from institutions which come under the A.O.S.A. to institutions which come under the Poor Law Officers' Superannuation Act their services in these different institutions should be aggregated for pension purposes, and their pension or gratuity should be calculated in accordance with the provisions of the Act under which they are contributing at the time of retirement or death.

10. Five years to be substituted for ten years in calculating the amount of superannuation allowance or gratuity, and the calculation to be made according to the average amount of the salary, etc., which would have been payable to the employee if he had remained in good health and full-time employment during that period.

11. Those who contracted out of the original Act to be allowed to come in on payment of arrears of contributions.

12. The West Riding Asylums Board and the Staffordshire Asylums Board to be included in the definition of local authority in Section 17 of the Act.

The PRESIDENT asked if any member wished to make observations on these suggested amendments.

Dr. W. F. MENZIES asked what was the "local authority." Lancashire had fourteen such and Yorkshire eighteen. How was consent to be obtained from all those local authorities? If one local authority were to dissent the whole clause would fall through.

Sir WILLIAM JOB COLLINS said that as he was responsible for introducing into the House the principal Act, he might perhaps be allowed a word on this occasion. It was in the year 1909 that he introduced the Asylums Officers' Superannuation Bill to the House of Commons, and he would never forget the collaboration of Dr. Shuttleworth, who gave him most valuable help. Some of the amendments now suggested, he thought, appeared in the original draft, but were eliminated in the process of the passage of the measure through the House, largely through the activity of Sir Frederick Banbury, who was at that time a most difficult person to encounter. It was, indeed, only by arrangements with that gentleman behind the Speaker's Chair that he was able to secure a second reading of the Bill at 11 o'clock at night. He understood it was now proposed to introduce an amending Bill by a private member. He assumed, however, that it would have to be a Public Bill, and that, but for the exigencies of the session it might (thanks to the absence of Sir Frederick Banbury, who had been elevated to another place), pass without serious opposition. There were financial provisions in the original Bill which were lost in the Commons, and he, the speaker, was able to have them restored in the Lords, though it was really an infringement of the Commons' constitutional powers with regard to financial Bills. This was an interesting record of how the House of Commons waived its rights in the matter of finance, and accepted amendment after amendment which were passed by the Lords. He wished every success to the amending Bill, and he regretted that some of the amendments which were now to be included could not be secured in 1909. A further regret he had was that he was not now a Member of the House of Commons to repeat the assistance he was able to give to such a commendable object in 1909. (Loud applause.)

Dr. D. BOWER said that at the time referred to by the previous speaker he was Chairman of the Parliamentary Committee; he could corroborate everything which Sir William Collins had just said. He was sure that the Association would always feel grateful to Sir William for his great services in getting the Bill through the House. (Applause.) The matters dealt with in the amending Pensions Bill had been fairly fully thrashed out, and he thought the Association could now well give authority to the small Committee, which had been working in collaboration with committees of the bodies concerned to proceed with the Bill. He proposed this.

Lt.-Col. J. R. LORD said that this was not the last occasion on which the Association would have the opportunity of considering this matter; this step was merely a preliminary one, as the Bill had not yet been framed. He understood that a private member whose name had been mentioned in the Council would father a

Bill on the lines mentioned. He took it that the Bill would ultimately be published in the *Journal of Mental Science*, and would go through the usual procedure of being considered by the Council and Parliamentary Committee and probably further suggestions made, and, possibly, some of the proposed amendments modified. What was now before the meeting was that the Committee be empowered to proceed on the lines of the report they had heard. If that was the meaning of the proposer of the resolution he would second it.

Dr. BOWER said that was his meaning.

Dr. SHUTTLEWORTH said he was associated with Sir William Collins in regard to the passing of the Pensions Bill, and it was a great pleasure to see him present this afternoon and looking so well. He wished to bear testimony to the great industry and tact which Sir William Collins displayed in the passage through the legislature of the Bill of 1909. The opportunity he referred to came late at night and on the last day of the session, and Sir William seized it. There was opposition threatened from an M.P. well known as an economist, and it was a question of five minutes whether the Bill could be proceeded with. The Association, he felt sure, would wish again to thank Sir William Collins for all that he did in promoting the passing of the Asylums Officers' Superannuation Act of 1909. (Applause.)

The proposition was agreed to.

The PRESIDENT remarked that, before passing to the next item of business, he would like to say how pleased he was to see Sir William Collins at the meeting, because he remembered when they of the specialty in Ireland were rather lagging behind, and he and some other Irishmen tried to get Irish officials included in the Bill, Sir William Collins took the matter up most warmly, and went to a lot of trouble to get it put right; and those in Ireland felt a great deal of gratitude for what he did so well, as in no country did the interests of officials need so much safeguarding. In the upheavals which had taken place of late many things might have happened.

A ROYAL CHARTER.

The PRESIDENT said the next matter he had to refer to was the Charter. It would be remembered that the Association empowered a small Committee to draw up a Royal Charter for the Association, and considerable progress had been made with it since the last meeting. He particularly mentioned the names of Dr. F. H. Edwards, Dr. C. H. Bond and Dr. G. M. Robertson, as well as that of Dr. R. Worth, who had all been working very hard at it. It had now reached the stage of petition. He asked Dr. Edwards to state the present position briefly.

Dr. F. H. EDWARDS said it would probably be remembered that last year a small Committee was appointed to consider the question of preparing, and presenting in due course, a petition for a Royal Charter for the Association. The present position of this Association was that it was actually a limited liability company. In the year 1895 permission was obtained to drop the suffix "Limited," but the Association still remained in the somewhat undignified position of being a company such as might be formed by any small body of people who chose to join together and trade. And it was felt that the Association had now reached a size, dignity and importance which justified application for a Royal Charter. The general feeling was that unless they trod seriously on anybody's corns the matter should go forward. He did not think it was necessary to read the petition in full, but it set forth the claims the Association sought to be recognized, and they felt they were such as had been recognized by the granting of a Charter in the case of other bodies of a similar character. It was asked that there might be recognized the power the Association already possessed to examine candidates for diplomas in psychological medicine and in mental nursing as formerly, and, generally, to carry out the functions of the Association as already existed. The position of the Association, as an examining body especially, would be very much strengthened if this were granted. To-day the terms of the document had been approved by the Council, and before the next meeting he hoped the form suggested in which the Charter should be granted would be presented. Unless any member wished to ask a question on the petition, he would move that the Association approve the action the Council had taken in this matter.

Dr. PERCY SMITH seconded.

Lt.-Col. J. R. LORD said the meeting might like to hear the new name which had been suggested in the Charter for the Association.

Dr. EDWARDS replied that the proposed name was "The Royal British Medico-Psychological Association."

Dr. J. G. SOUTAR said he thought the addition of the word "British" was unnecessary. It was open to members of the specialty in all overseas regions to become members of the Association, and it did not seem advisable to limit it by attaching to it the word "British." Still, he did not press it.

Prof. G. M. ROBERTSON said it had been left open to the Committee who had been dealing with this matter to suggest any name they pleased. The word "British" was suggested as including not only the home countries, but also the Dominions beyond the seas.

Dr. SOUTAR said it was not his intention to propose an amendment.

Dr. EDWARDS replied that this Association had no special claims to consider itself to be *the* Medico-Psychological Association; there were many other countries which described their association dealing with psychiatry as *the* Medico-Psychological Association. Indeed, he believed Americans used this particular name.

Lt.-Col. J. R. LORD said that there were many such on the continent.

Dr. MENZIES said it was usual to leave out "British." We had our insular prejudices, but we did not put "British Empire" on our stamps. It sounded better to leave out "British," but it must be left to the Committee.

The proposal was carried.

OBITUARY.

The PRESIDENT said the Association had to regret the loss of one of its old and valued members. He asked Prof. Robertson to say a few words about the loss of Dr. H. Gardiner Hill.

Prof. G. M. ROBERTSON said he thought the death of Dr. Gardiner Hill should not pass without a reference of a very particular nature, seeing that his name would go down in history as that of one who had instituted a great reform in the care of the insane. Dr. Gardiner Hill, who had just died, was at one time Assistant Medical Officer at "The Lawn," Lincoln, and subsequently he went to Cane Hill as Assistant Medical Officer, and from there was promoted Medical Superintendent of Middlesex County Asylum, Tooting, where he served as Medical Superintendent for 28 years. While there he carried out most advanced and improved methods in the care of the mentally deranged, and carried out all the ideals established by his father while Assistant Medical Officer at The Lawn. Members were aware that the father of the deceased, in the year 1835, while quite a young man, aged 22, decided that it was not necessary that patients should be kept under mechanical restraint. That constituted a landmark in the history of the treatment of the insane in this country, and completed the work which had been begun by Pinel, in Paris, in 1793. Lincoln Asylum was visited by Dr. Conolly, of Hanwell, and he was so impressed by what Gardiner Hill had done that he introduced exactly the same methods on an extended scale into Hanwell. Others followed suit. At that time this country took the first step which had placed it in advance of all countries of the world in the humane care and treatment of the insane, a position which, the speaker thought, the country had never fallen back from. Their late colleague was an extremely sociable man, and one had a liking for him for, among other things, his interest in sport. He was not only a great golfer himself, but both his sons got their "Blue" at Cambridge University, and one of them was captain of the golfing team at the University.

A resolution of sympathy with the members of the family of the deceased member was carried by those present rising in their places.

ELECTION OF NEW MEMBERS.

Dr. Brooks Keith and Col. Lord were appointed scrutineers for the ballot.

The following were unanimously elected ordinary members of the Association:

DHUNJIBHOY, JAL EDULJI, *Capt. I.M.S., M.B., B.S.* Bombay, Senior Physician Superintendent, Berhampore Central Mental Hospital, Bengal.

Proposed by Drs. J. G. Porter Phillips, T. Beaton and R. Worth.

SELKIRK, ELIZABETH THOMPSON, *M.B., Ch.B.* Edin., Assistant Medical Officer, City Mental Hospital, Birmingham.

Proposed by Drs. C. Roscrow, T. C. Graves and R. Worth.

MORRIS, JOHN VINCENT, *M.B., B.Ch.* Dubl., Assistant Medical Officer, Norfolk Mental Hospital, Thorpe, Norwich.

Proposed by Drs. O. G. Connell, A. W. B. Livesay and R. Worth.

DAVIDSON, THOMAS WISHART, M.B., Ch.B.Glasg., D.P.M., Assistant Medical Officer and Pathologist, City Mental Hospital, Humberstone, Leicester.

Proposed by Drs. H. Dove Cormac, L. C. F. Chevens and A. T. W. Forrester.

STAFFORD, HARRY, M.B., Ch.B.Manch., Assistant Medical Officer and Pathologist, Parkside Hospital, Macclesfield, Cheshire.

Proposed by Drs. H. Dove Cormac, L. C. F. Chevens and G. L. Brunton.

Dr. R. WORTH (Hon. General Secretary) said that owing to the sad death of Dr. C. M. Tuke, one of the Auditors of the Association, it was necessary to appoint a successor. Dr. H. J. Norman had been approached, and had kindly consented to allow his name being submitted as an Auditor to the Association. He thought Dr. Norman would commend himself to everybody present.

Agreed.

THE SIXTH MAUDSLEY LECTURE.

Dr. J. SHAW BOLTON, of West Riding Asylum, Wakefield, then delivered the Maudsley Lecture on "Mind and Brain" (*see* p. 357).

The PRESIDENT said that no subject could be of more compelling interest to members of the Association than that which had been chosen by the Maudsley Lecturer for the year, and few could have handled it so thoroughly in the time at his disposal. The depth of his original research, and the breadth and clarity of his deductions, showed him to be possessed of that happy blend of experiment and imagination which was held to be essential to progress in the investigation of the relationship of mind with brain. Possibly at no time in the history of the world had this problem received the degree of attention which it was now having, and it was one which would defy full solution until our present conception of brain and mind passed away. Meantime, its solution would no doubt continue to be presented in a variety of forms. To-day there was Sir Oliver Lodge's speculations as to the ether as the basis of life and mind, while on the walls of the Academy Sir William Orpen's panels presented, in a problem picture, the contest between man and beast—mind and matter. He was sure the lecturer, Dr. Shaw Bolton, deserved the Association's warmest thanks.

Dr. PERCY SMITH said it gave him much pleasure to accede to the President's wish and second this vote of thanks. Dr. Bolton had, in this lecture, taken his hearers over a very long space; he started with the early insect, and brought one up to the consideration of the unconscious mind, discussing in passing birds, mammals, reptiles and other forms of life. It had been his great honour to be associated with Dr. Bolton in the last three or four years as Examiner at Wakefield, and while down there he, the speaker, had seen his laboratory work. And members were familiar with Dr. Bolton's work on amentia and dementia, and his elaborate examination of the cortex in association with mental functions. Therefore it was certain that on this occasion there would be a most instructive and illuminating address. In one part of his address Dr. Shaw Bolton said few individuals sufficiently exercised their cortex to justify its possession. But Dr. Bolton was himself one of the few, for he had brought his own cortex to the highest degree of development. There were many points which could be discussed, if that were usual, and many would probably like to discuss his views on Freudianism, the unconscious mind, dreams, etc. But that must be left for the present. He was sure members would agree that the heartiest thanks were due to Dr. Shaw Bolton for his address.

Carried by acclamation.

Dr. SHAW BOLTON, in reply, said he was very grateful for the opportunity he had had not of giving this lecture, but of stating certain truths, which required stating by someone, though not necessarily by himself. He felt much indebted to the audience for the quiet and kind way in which they had listened to him, and had, despite the warmth of the room, refrained from going to sleep.

SOUTH-EASTERN DIVISION.

THE SPRING MEETING of the Division was held by the kind invitation of Dr. R. C. Turnbull at Severalls Mental Hospital, Colchester, on Thursday, April 30, 1925.

It was well attended, and among those present was Lord Sandhurst, one of the Lord Chancellor's Visitors-in-Lunacy.

The members were shown round the hospital and grounds, and were then entertained to lunch, at the conclusion of which Lord Sandhurst proposed the health of Dr. Turnbull, to which the latter replied.

The meeting was held at 2.45 p.m.

Dr. Percy Smith took the Chair.

The minutes of the last meeting, having appeared in the Journal, were taken as read and confirmed.

Drs. Noel Sergeant, A. Helen Boyle, A. A. W. Petrie, R. C. Turnbull and H. Wolseley-Lewis were elected Representative Members of the Council for the year 1925-26, and Dr. Noel Sergeant Honorary Divisional Secretary.

Drs. J. D. Burke, R. C. Turnbull and Isabel G. H. Wilson were elected members of the Divisional Committee of Management.

Drs. B. F. Home and E. Lincoln Williams were elected members of the Association.

It was left to the Secretary to arrange the Autumn Meeting. (It has since been arranged to hold the Autumn Meeting at "Swaylands," Penshurst, Kent, the precise date in October to be decided upon later.)

Dr. GORDON MASEFIELD read his paper entitled "Observations on a Mental Hospital Death-Rate," which was followed by a discussion in which Drs. BARHAM, DIXON, G. W. SMITH, R. PERCY SMITH and NOEL SERGEANT took part. Dr. MASEFIELD replied.

The meeting concluded with a hearty vote of thanks to Dr. Turnbull, and the members were then entertained to tea by Dr. and Mrs. Turnbull.

SOUTH-WESTERN DIVISION.

THE SPRING MEETING of the Division was held, by the courtesy of Mrs. Fox and Dr. J. M. Rutherford, at Brislington House, Bristol, on Thursday, April 30, 1925.

Twenty-four members were present and four visitors.

Dr. J. G. SOUTAR was voted to the Chair and the minutes of the last meeting were confirmed and signed.

The SECRETARY read apologies for absence from the President, *ex-President*, Dr. Nelis and others.

Dr. W. Starkey was elected Hon. Div. Secretary, and Drs. R. Eager and Soutar Representative Members of Council. Dr. S. Cole and Dr. S. E. Martin were elected as members of the Committee of Management in place of Drs. Barton White and G. E. Peachell, who retire in rotation.

The following candidate, after ballot, was unanimously elected an ordinary member of the Association:

FRANCIS ELLIOT FOX, M.R.C.S., L.R.C.P.Lond., Brislington House, Bristol.

Proposed by Drs. J. M. Rutherford, H. B. Wilkinson and W. Starkey.

The HON. SECRETARY reported that Dr. A. Townsend had kindly invited the Division to hold its Autumn Meeting at Barnwood House, Gloucester, and it was so fixed for Thursday, October 29, 1925.

A letter from Dr. Nelis, on the question of the new regulation of the Education Committee appointing a nurse coadjutor at the Final Examination for the Nursing Certificate, was read. Considerable discussion ensued, and it was proposed by Dr. MCGARVEY, seconded by Dr. S. E. MARTIN and passed, that in future six months' notice should be given by the Association of any alterations in the Examinations.

The following resolution, proposed by Dr. BLACHFORD and seconded by Dr. EAGER, was passed unanimously: "That this meeting protests against the stipulation that the nurse coadjutor at the Final Examination for the Nursing Certificate must be doubly trained, and considers that the first essential should be that she hold the M.P.A. Certificate in Mental Nursing."

Dr. S. GROSSMAN, of Cardiff Mental Hospital, then read a short paper entitled "The Value of Simple Laboratory Tests in the Diagnosis of Neuro-Syphilis as compared with the Wassermann Reaction." He dealt with the methods of

Nonne-Apelt, with the Ross-Jones modification, Weichbrodt and Boltz. Of the last method he gave a successful demonstration.

A discussion ensued, in which Drs. J. G. SOUTAR, BARTON WHITE, EAGER, REID and MCGARVEY took part, and Dr. GROSSMAN briefly replied.

A hearty vote of thanks to Mrs. Fox and Dr. J. M. Rutherford for their hospitality concluded a very successful meeting.

During the forenoon members had the opportunity of inspecting the Institution and its gardens, and were most hospitably entertained to lunch by Mrs. Fox, who also provided tea at the close of the meeting.

NORTHERN AND MIDLAND DIVISION.

THE SPRING MEETING of the Division was held, by the courtesy of Dr. R. C. Stewart, at the Leicestershire and Rutland Mental Hospital, Narborough, on Thursday, April 23, 1925.

There was an attendance of 23 members.

Dr. Stewart showed the members round the Hospital in the forenoon, explaining many of the interesting features of its construction. Afterwards he entertained them to lunch, at the conclusion of which a vote of thanks was proposed by Dr. T. C. Adair and carried with acclamation.

The meeting was held at 2.30 p.m., when Dr. R. C. Stewart took the Chair.

The minutes of the last meeting were read and confirmed and signed by the Chairman.

Dr. J. R. Gilmour was re-elected Secretary of the Division, and Drs. E. S. Simpson, W. H. Coupland and H. Dove Cormac were elected Representative Members of Council for the ensuing year.

The two following candidates were, after ballot, elected ordinary members of the Association:

ELEANOR MILDRED CREAK, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Assistant Physician, The Retreat, York.

Proposed by Drs. H. Yellowlees, N. Macleod and J. R. Gilmour.

SAMUEL MAXWELL STEEL, M.B., Ch.B.Glasg., Assistant Medical Officer, Monyhull Colony, King's Heath, Birmingham.

Proposed by Drs. A. M. McCutcheon, J. R. Gilmour and E. S. Simpson.

Dr. F. H. STEWART, Cheddleton, Staffs, then read his paper, "The Occurrence of *B. enteritidis* (Gärtner) in Cases of Relapsing Confusional Insanity: A Possible Cause of the Disease."

Dr. F. H. STEWART described a variation in the bacterial flora observed in eight cases of relapsing confusional and manic-depressive insanity. It consisted in the substitution of non-lactose fermenting bacilli for the normal *B. coli*. This substitution commenced with the onset of the disease, became more complete as the symptoms increased, less complete as the symptoms diminished, and ceased at convalescence. The abnormal bacilli are Gram-negative coccobacilli, which can be divided into nine races by their sugar reactions. The central race resembles the *Salmonella* (food-poisoning) group. On the one side of these are races which do not ferment dulcitol, and one race which gives the reactions of Shiga. On the other side are two races which ferment saccharose. Some do not produce indol, others do. None are virulent on injection into mice. None are agglutinated by standard sera against the coli-typhoid group. The serum of three patients agglutinated their autogenous bacilli in dilutions of 1/50. Two patients agglutinated *B. enteritidis*, Gärtner, although there was no evidence of food-poisoning.

Drs. R. C. STEWART, B. H. SHAW, T. C. GRAVES and D. YELLOWLEES took part in the discussion which followed.

The CHAIRMAN then introduced a discussion on the revised Rules of the Commissioners. This led to a lively criticism of the Rules, nearly every member taking part. The following resolution was carried and ordered to be submitted to the Council: "That it is expedient and advisable that the words 'to the best of my knowledge and belief' be retained on the statement of death."

The places of meeting for the Autumn and Spring Meetings were left to the Secretary to arrange.

SCOTTISH DIVISION.

A MEETING of the Scottish Division of the Medico-Psychological Association was held at the Inverness District Asylum on Thursday and Friday, June 4 and 5, 1925.

Among those present was Sir Arthur Rose, an Honorary Member and Chairman of the General Board of Control for Scotland.

Dr. R. B. Campbell occupied the Chair.

Before taking up the ordinary business of the meeting the Chairman feelingly referred to the great loss which the Association had sustained by the death of Dr. John Fraser, who had rendered such signal service to the welfare of the insane and to lunacy administration in Scotland for a period of almost 50 years.⁽¹⁾ It was unanimously resolved that it be recorded in the minutes that the members of the Scottish Division of the Medico-Psychological Association desire to express their deep sense of the loss sustained by the death of Dr. John Fraser, and their sympathy with the members of his family in their bereavement, and the Secretary was instructed to send an excerpt of the minute to the relatives.

The Chairman also feelingly referred to the loss which the Association had sustained by the death of Dr. William Arnot Parker, for many years Medical Superintendent of the Glasgow District Mental Hospital, Gartloch. Dr. Parker always took a keen interest in the affairs of the Scottish Division, and for many years acted as Secretary and Treasurer of the Western Asylums Research Institute.⁽²⁾ It was unanimously resolved that it be recorded in the minutes that the members of the Scottish Division of the Medico-Psychological Association desire to express their deep sense of the loss sustained by the death of Dr. William Arnot Parker, and their sympathy with the members of his family in their bereavement, and the Secretary was instructed to send an excerpt of the minute to Mrs. Parker.

The minutes of the last Divisional Meeting were read and approved, and the Chairman was authorized to sign them.

Dr. T. C. Mackenzie and Dr. Donald Ross were unanimously elected Representative Members of Council for the ensuing year, and Dr. Wm. M. Buchanan was unanimously elected Divisional Secretary.

The following candidates, after ballot, were elected ordinary members of the Association:

JOHN ALEXANDER JENKINS, M.B., Ch.B.Glas., Assistant Medical Officer, Argyll and Bute District Asylum, Lochgilphead.

Proposed by Drs. Donald Ross, N. T. Kerr and Wm. M. Buchanan.

JAMES STEWART IAN SKOTTOWE, M.B., Ch.B.Glasg., Assistant Medical Officer, Royal Mental Hospital, Gartnavel, Glasgow.

Proposed by Drs. D. K. Henderson, A. G. W. Thomson and A. Macniven.

FRANCIS ESMOND REYNOLDS, M.B., Ch.B.Edin., Pathologist, Scottish Asylums Pathological Scheme, Lecturer on Neuro-Pathology, Edinburgh University; Laboratory of Scottish Asylums, Royal Infirmary, Edinburgh.

Proposed by Drs. R. B. Campbell, J. H. Skeen and Wm. M. Buchanan.

The SECRETARY reported that the Advisory Committee appointed by the Division had met the Education and Examination Committee of the General Nursing Council for Scotland on February 20, 1925, when the following arrangements for the Nursing Council's final examination in mental nursing had been agreed to:

That the written part of the final examination be held at Edinburgh, Glasgow, Dundee and Aberdeen, and at other places where not less than fifteen candidates intimate their desire to be examined, or where owing to the long distance from a centre, special arrangements are desirable for the convenience of candidates, provided arrangements are made by the hospitals concerned for the conducting of the examination to the satisfaction of the Council.

That the oral and practical part of the examination be held at such places as may be afterwards arranged when the number of candidates likely to enter can be more nearly ascertained.

That the written paper be set by the Advisory Committee of the Medico-Psychological Association and approved by a panel of examiners, comprising two medical examiners and two nurse examiners to be recommended by the Advisory Committee for appointment by the Council.

(1) For obituary notice see April No., p. 187.

(2) For obituary notice see April No., p. 349.

That the oral and practical examination be conducted by ten medical examiners and ten nurse examiners to be nominated by the Advisory Committee for appointment by the Council, the Advisory Committee to supply the names of some substitutes in case those originally chosen cannot act.

That the written part of the examination consist of one paper, the questions in which will cover all sections of the syllabus with the exception of (1) the sections taken in the preliminary examination and (2) Section XIII.

That the final written examination for nurses for mental defectives will be on similar lines, but that the subjects will exclude Section IX, and will include Section XIII.

That the paper shall contain eight questions, of which six must be answered, including two essential questions which will be specially marked as such.

That the pass mark for the written examination be 50 *per cent.*, but that a candidate shall not be allowed to enter for the oral and practical part of the examination unless she has obtained at least 45 *per cent.* in the written part of the examination.

The Advisory Committee also undertook to supply the Council with a list of Mental hospitals which might be approved by the Council as training schools if they desire to apply for recognition, and the following interim list had since been transmitted to the Registrar:

Training Mental Nurses.—Aberdeen City, Aberdeen Royal, Argyll and Bute District, Ayr District, Roxburgh, Berwick and Selkirk District, Crichton Royal Institution, Fife and Kinross District, Dundee District, Montrose Royal, Inverness District, Glasgow Royal, Glasgow District (Gartloch), Glasgow District (Woodilee), Govan District, Kirklands, Lanark District, Edinburgh District, Midlothian and Peebles District, Royal Edinburgh, James Murray's Royal, Perth District, Greenock Parochial Asylum, Craw Road, Paisley District, Renfrew District, Stirling District, Stobhill.

Training Nurses for Mental Defectives.—Royal Scottish National Institution, Baldovan Institution, Stoneyettes Certified Institution.

This interim list includes all the Scottish hospitals presently recognized as training schools by the Medico-Psychological Association, with the exception of Dundee Royal Asylum, New Saughton Hall, Banff District Asylum, East Lothian District Asylum, and Moray District Asylum, whose continued recognition is presently under consideration by the Education Committee of the Association.

THE SECRETARY read the following letter from the Registrar of the General Nursing Council:

"General Nursing Council for Scotland, 18, Melville Street, Edinburgh, April 28, 1925.—Dr. W. M. Buchanan, Hon. Secretary, Medico-Psychological Association, Kirklands Mental Hospital, Bothwell.—Dear Sir,—At a meeting of the Education and Examination Committee of my Council held on 24th inst. it was pointed out that there appears to be a discrepancy between the Council's Syllabus for Mental Nurses and their Syllabus for General and other Nurses in regard to Anatomy and Physiology for the Preliminary Examination. Under the Council's Syllabus for General Training, of which I enclose a copy, Elementary Anatomy and Physiology includes the Nervous System, whereas in the Mental Syllabus (following the practice adopted⁽¹⁾ by your Association) Elementary Anatomy and Physiology of the Nervous System appears as Section VII, and is not taken till the Final Examination. Mental Nurses going up for the Council's Preliminary Examination might therefore be handicapped, and my Committee will be glad to know whether your Committee see any objection to Section VII being taught in the first 18 months and included in the Syllabus for the First Examination.—I am, yours faithfully, W. S. FARMER, Registrar."

He explained that at the Quarterly Meeting of the Association in London in May the letter had been placed before the Education Committee, who had remitted the matter to the Scottish Division to deal with. After some discussion of the points raised, the Secretary was instructed to reply that the Division was of opinion

(¹) It ought to be recorded that the syllabus adopted by the Nursing Council is that of the Medico-Psychological Association based upon its *Handbook for Mental Nurses* (7th Edition).—[EDS.].

that Section VII of the Council's Syllabus for Mental Nurses should continue to be taught in conjunction with the subject of Mental Diseases and should continue to be taken in the Final Examination, but that the difficulty raised should be met by the inclusion of Elementary Anatomy and Physiology of the Nervous System in Section II of the Council's Syllabus.

With regard to the amendment of the Asylums Officers' Superannuation Act, the Secretary reported that the Draft Amending Bill had been approved by the Association, and that steps were now being taken to have this Bill introduced into the House of Commons.

In this connection the Chairman stated that he had been requested by the Board of the Scottish Asylums' Pathological Scheme to represent to the Division the desirability of having the Superannuation Act so amended that the pathologists of such schemes might benefit by its provisions. The Meeting was of opinion that such amendment was desirable, and the Secretary was instructed to communicate with the Secretary of the Conference which had drafted the contemplated amending Bill, so that, if possible, the question might still be considered by the Conference, with a view to its incorporation in the Amending Bill.

It was intimated that an invitation had been received from Prof. Robertson to hold the next meeting at the Edinburgh Royal Hospital. It was unanimously agreed to thank Prof. Robertson for his invitation, and to hold the Autumn Meeting at Morningside.

This concluded the business of the first day's session, prior to which members were kindly entertained to tea by Dr. and Mrs. Mackenzie.

A well-attended dinner was held in the Palace Hotel in the evening.

On the meeting reassembling on the morning of June 5, Dr. GEORGE H. R. GIBSON, D.S.O., read a short paper on "The Boarding-Out System," which elicited an interesting and instructive discussion, taken part in by Drs. ALEXANDER, SHAW, McRAE, MACKENZIE, ROSS, KERR, HENDERSON, Sir ARTHUR ROSE and Mr. McBEAN, the Inspector of Poor, Inverness, who was present as a guest.

Dr. WILLIAM McWILLIAM summarized a short paper on "The Sensitivity of the Sympathetic Nervous System to Adrenalin in Some Cases of Mental Disorder" (*vide* p. 432). The paper was discussed by Drs. HENDERSON, McALLISTER and MACKENZIE.

Dr. Mackenzie presented a case of idiocy, who, when music was played, exhibited violent rocking movements of the whole body synchronous with the time of the music.

Dr. Mackenzie and his assistants conducted members over the Hospital and grounds.

Members were received by the Chairman of the Hospital Committee and kindly entertained to lunch, after which, on the motion of Sir Arthur Rose, the Inverness District Board of Control and Dr. Mackenzie were cordially thanked for the arrangements made in connection with the meeting and for their kind hospitality.

IRISH DIVISION.

THE SPRING MEETING of the Irish Division of the Medico-Psychological Association was held at the Stewart Institution, Palmerstown, Chapelizod, co. Dublin, on Thursday, April 23, 1925, by the kind invitation of Dr. Keene, Dr. M. J. Nolan, President, M.P.A., in the Chair.

The minutes of the last meeting were read and signed.

Dr. Leeper was re-elected Hon. Secretary, and Dr. J. O'Connor Donelan, Dublin, and Dr. Graham, of Belfast, were re-elected Representative Members of Council for the ensuing year.

A ballot for the election of six ordinary members was next proceeded with and the following were declared elected:

JOHN THOMPSON, M.B., B.Ch.Belf., Senior Assistant Medical Officer, St. Patrick's Hospital, Dublin.

Proposed by Dr. R. R. Leeper, *seconded by* Dr. J. O'Connor Donelan and Dr. L. Gavin.

PATRICK MORAN, M.B., B.Ch.Belf., D.P.H., Assistant Medical Officer, District Mental Hospital, Mullingar.

Proposed by Dr. L. Gavin, seconded by Dr. M. J. Nolan and Dr. J. O'Connor Donelan.

ROBERT TAYLOR, L.R.C.P.&S.Irel., Assistant Medical Officer, St. Patrick's Hospital, Dublin.

Proposed by Dr. Richard R. Leeper, seconded by Dr. M. J. Nolan and Dr. J. O'Connor Donelan.

DOROTHY HERBERT DOUGLAS, L.R.C.P.&S.Irel., Pathologist, Farnham House, Finglas: Merrion House, Lower Fitzwilliam Street, Dublin.

Proposed by Dr. H. R. C. Rutherford, seconded by Dr. G. H. Keene and Dr. R. R. Leeper.

JOSEPHINE ALCORN CARSON, L.R.C.P.&S.Irel., Assistant Medical Officer Farnham House, Finglas.

Proposed by Dr. H. R. C. Rutherford, seconded by Dr. G. H. Keene and Dr. R. R. Leeper.

THOMAS TIGHE WANDESFORD EATON, L.R.C.P.&S.Irel., Assistant Medical Officer, St. Patrick's Hospital (Lucan Branch).

Proposed by Dr. R. R. Leeper, seconded by Dr. J. O'Connor Donelan and Dr. G. H. Keene.

Dr. NORMAN GRAHAM, Purdysburn Villa Colony, Belfast, then read a paper on "The Malarial Treatment of General Paralysis" (*vide p. 424*), which was listened to with great interest. All were agreed as to the extreme value of the work being done by Dr. Graham in this direction.

Dr. J. O'C. DONELAN discussed past treatment, and hoped that the results would be better than some of the former methods, such as by nucleate of sodium. He pointed out that he had had a fair number—35 *per cent.*—of apparent remissions without any specialized treatment, and stated that great care should be taken before appraising the value of new treatment of a disease like general paralysis, where marked remissions and apparent recoveries frequently occurred.

Dr. DUNNE described the treatment of general paralysis with malarial infection obtained from the Liverpool School of Tropical Medicine at the Richmond (now named Grangegorman) Hospital.

The PRESIDENT praised Dr. Graham's paper, and stressed the point that this treatment was largely on its trial, but that it marked a distinct advance, and with a wider experience of its results much might be expected of it. The places where malaria was endemic and where general paralysis was a rare disease were considered, and this aspect of the *rationale* of the treatment was dealt with. There was much discussion as to the *rationale* of the treatment. High temperatures, it was noted, often occur in cases of general paralysis as an ordinary symptom of the disease, so that the malarial treatment cannot wholly, at all events, owe its efficiency to hyperpyrexia. The members considered at length the advisability, if possible, of some standardization of the malarial dose, the number, say, of the parasites to be injected, and the reaction time allowed.

Dr. G. H. KEENE mentioned his own experiences as a sufferer from malaria during the war and drew attention to the apparent impossibilities of malarial treatment removing the gross meningeal and cortical changes which occurred in the last stages of general paralysis. He expressed the view that cerebral forms of malaria were not dangerous to life.

Dr. W. N. EUSTACE seemed to think that depressed cases of general paralysis did not usually recover. Maniacal cases had remissions more frequently and seemed, apparently, to recover. Depressed cases died sooner than the maniacal.

Dr. H. R. C. RUTHERFORD expressed the opinion that malarial treatment was the only one at present, and asked if it were possible to have a malarial infection without hyperpyrexia.

Dr. NORMAN GRAHAM replied by thanking the members for the very cordial manner in which they had received his paper. He regretted that he had not had his patients cinematographed before and after treatment. He stated that a standardization of dosage could be effected, but it would be a work of considerable difficulty.

Suggestions were made for the establishment of a State Central Department where malarial treatment could be carried out, so as to provide a central place for

the occasional cases found in rural district mental hospitals, and the members present heartily congratulated Dr. Norman Graham on his efforts to establish malarial treatment of general paralysis upon a sound clinical and pathological basis.

The meeting next proceeded to fix the dates for the meetings of the Irish Division for the ensuing year as follows: Summer Meeting on Tuesday, July 14, 1925; Autumn Meeting, Thursday, November 5th, 1925; Spring Meeting, Thursday April 22, 1926.

It was decided to hold the Summer Meeting of the Division in Southern Ireland, two hospitals being mentioned as possible places of meeting.

The Meeting then considered the question of the training of mental nurses and the Syllabus of the General Nursing Council of Southern Ireland.

The HON. SECRETARY and Dr. J. O'CONOR DONELAN reported the appointment by the General Nursing Council of an Advisory Committee composed of Dr. Kelly, Dr. J. O'Conor Donelan and Dr. Leeper. This Advisory Committee had been summoned by the General Nursing Council on two occasions, and the Advisory Committee had expressed their opinion and given the best advice they could in regard to the holding of examinations, etc., with the least difficulty and expense to the staffs of the various mental hospitals throughout the country.

A letter was read from the General Nursing Council of Northern Ireland requesting the Irish Division to appoint two of its members to act as an Advisory Committee to the Northern Nursing Council. It was decided to appoint Dr. W. Graham and Dr. M. J. Nolan to act as requested.

Dr. J. O'CONOR DONELAN proposed and Dr. A. FITZGERALD seconded a cordial vote of thanks to Dr. Keene for his kindness and hospitality in entertaining the Division, which was passed by acclamation.

This terminated the proceedings.

EDUCATIONAL NOTES.

University of Cambridge.—Diploma in Psychological Medicine.

A course of lectures and classes in preparation for the examination for Part I of the Diploma in Psychological Medicine will be held in the Physiological and Psychological Laboratories at the University of Cambridge during the Michaelmas Term, 1925. Lectures begin on Wednesday, October 14, and will be conducted as follows:

Dr. Adrian: The Central Nervous System, Tuesdays, Thursdays and Saturdays, 9 to 10. Practical Work, Mondays, 10 to 12. Prof. Wilson: The Anatomy of the Central Nervous Organs, Mondays, Wednesdays and Fridays, 5 to 6 (Anatomy School). Mr. Bartlett: Psychology, Mondays, Wednesdays and Fridays, 12 to 1. Practical Work, Tuesdays and Thursdays, 11 to 1. Dr. McCurdy: Principles of Psycho-pathology, Tuesdays and Thursdays, 5.30 to 6.30.

The examination for Part I of the Diploma will be held in Cambridge at the end of the Michaelmas Term.

An inclusive fee of £10 10s. (ten guineas) will be charged for the above course. Special arrangements may be made to take only part of the course.

Courses of instruction in theoretical and practical psychiatry may be held at Cambridge during the Lent Term. Full details will be published later.

Application to attend the above courses should be made to The Secretary, Committee in Psychological Medicine, The Psychological Laboratory, Cambridge, from whom copies of the Regulations for the Examination may be obtained.

THE NATIONAL COUNCIL FOR MENTAL HYGIENE.

EXTRACTS FROM PRÉCIS OF EVIDENCE GIVEN ON MAY 22 BEFORE THE ROYAL
COMMISSION ON LUNACY AND MENTAL DISORDERS.

Recommendations.

EARLY TREATMENT FOR MENTAL DISORDERS.

The National Council for Mental Hygiene recommends that skilled treatment for mental disorders in their early stages should be available in clinics belonging to general hospitals or in special institutions.

General hospitals.—From many points of view the general hospital, assuming that suitable staff and accommodation are provided, is the ideal institution for many of those patients who need treatment, and not compulsory detention.

(i) The general hospital is the natural place for the patient to go to if not well, and the mentally sick patient is then like any other patient.

(ii) It is in a central available situation.

(iii) It has facilities for consultations with physicians, surgeons and specialists.

(iv) It has laboratories for exhaustive examination and team work.

(v) Many patients already attend the general hospitals without realizing that they are primarily suffering from mental disorder. They will always be found there, helping to swell the "chronic" section of the out-patient department, as, even when their condition is correctly diagnosed, there exist no means of affording them appropriate treatment. Moreover, these patients may be undermining the mental health of every member of the household in which they live. This is true even of some mild cases, and was pointed out long ago by Weir Mitchell: "Wherever you have a nervous girl you will soon have two sick women."

(vi) A department, including out-patients and in-patients, for these cases should be a special department in charge of a suitably qualified physician, as the eye, ear, skin and venereal disease departments are already. It should provide facilities for classification and for other special requirements. Such a department would lead to a better grasp of these states by the medical profession as a whole. The interchange of cases between this and the other departments would tend to show that a number of patients, with apparently other complaints, were really suffering from mental disorders. On the other hand, many cases diagnosed as mental would be shown to be due to physical conditions. Our proposal would benefit the medical students where a medical school is attached to a hospital, also the nursing profession, and would lead to a better understanding of mental cases by the public.

(vii) In general hospitals there is at present no need for routine personal visitation of willing or non-volitional patients by any authority. It would, therefore, seem hardly necessary that the cases we are dealing with should be so visited. We feel that there should be no differentiation between this class and any other class of patients in general hospitals. We appreciate that a grant of money by a public body would carry with it the right of supervision.

Special institutions.—These are required when and where the general hospital is unwilling or unable to undertake the work. In this case it would be wise that the work should be carried on in buildings completely separate from county and borough mental hospitals. Their organization should approximate as closely as possible to the voluntary hospital principles, and there should be no compulsory detention.

Voluntary boarders.—The Council recommends that voluntary boarders should be allowed in all county and borough mental hospitals.

It finds itself in complete agreement with the Medico-Psychological Association

and the British Medical Association that it is desirable that the voluntary boarder system should be extended to rate-aided institutions, and desires to endorse the arguments which these bodies have set before the Commission.

Nursing homes and private care.—The Council recommends, with regard to provision for early treatment for those who can pay, that medical practitioners should be allowed to treat willing and non-volitional patients without certificates in registered nursing homes or kindred institutions. There is difficulty in obtaining early treatment if a patient be a borderland case or certifiable as insane, and yet the doctor who treats them in his own home, or his nursing home, does so at his peril, unless they are under certificates. He may be prosecuted and fined. Moreover, the doctor is only allowed, even with permission, to take two certified patients, however competent he may be and however anxious other patients may be to place themselves under his care. The same risk is run by the proprietor of any house or home to which patients may wish to go.

Wherever non-volitional cases are received some form of notification to or supervision by the Central Authority is, in the opinion of the Council, desirable. But the routine personal inspection of patients as opposed to the inspection of institutions may be detrimental; it should be reduced to a minimum, and should be entirely medical. It is noteworthy that there is no system of supervision or visitation of patients suffering from, say, febrile delirium, such as in pneumonia or typhoid, paralytic strokes, or comatose states, all of which conditions may render them non-volitional, and as unable to protect themselves from inadequate or careless treatment as even the most advanced cases of mental disorder are. To protect all patients, and in keeping with the principle enunciated above of bringing this treatment into line with general medicine, we would urge the registration of all nursing homes under the Ministry of Health. We deprecate any special registration of homes which take willing mental patients simply because their condition is thought to have a mental rather than a physical basis. Under such a system of universal registration of nursing homes of every type abuses can be dealt with by the ordinary process of law, and those patients suffering from mental disorder have the widest choice of where they wish to be treated.

THE ADMINISTRATION OF PUBLIC MENTAL HOSPITALS.

As regards the administration of public mental hospitals the Council feels that hospital methods should be adopted to the fullest extent, but they would not wish it to appear that they think that in many cases this is not so already. They urge that the practice of appointing consultants in general medicine and surgery and their special branches should be universal throughout public mental hospitals, and that the staff of the latter hospitals should be permitted to hold corresponding positions in psychiatry at the general hospitals.

They would also urge that the Central Authority (the Board of Control) should have greater powers to enforce the adoption of such facilities where they do not already exist. They consider that the ordinary medical attendants of patients admitted into mental hospitals should be given every facility for keeping in touch with the progress and treatment of their patients and for collaborating in the treatment whenever possible. In this way patients leaving hospital would, on returning to their homes, be enabled to continue after-treatment assisted by the knowledge and experience thus acquired by the general practitioner.

AFTER-CARE.

The Council recognizes that in very many cases the recurrence of mental disorder is precipitated by the return to unsuitable home conditions. They consider, therefore, that every assistance and encouragement should be given to after-treatment, such as is at present given by the After-Care Association. They have evidence, in the experience of certain members of the Committee, that where after-care is available, permanent mental health is re-established, and, therefore, they urge that the financial authority should generously support any established or recognized organization which has this after-treatment as its function.

THE LIBRARY.

The following books have been purchased and can now be obtained :
MacDougall, *An Outline of Psychology*.
Bleuler, *Mental Diseases*.
Jung, *Studies in Word Association*.

Jan.,
1925.

PSYCHE

5/-
net.

A Quarterly Journal of Psychology

B. Malinowski, D.Sc. : Complex and Myth in Mother-Right.
Geneviève Ambrose : The Nature of Genius.
H. D. Waley : The Limits of Experimental Æsthetics.
W. P. Farrow, D.Sc. : Experiences with Two Psycho-analysts.
H. Reinheimer : The Divorce from Symbiosis.
A. M. Mantell : Helpful Imagination.
Charles Whitby, M.D. : The Shelleyan Ethos and Pathos.
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THE JOURNAL

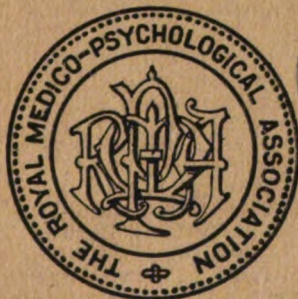
OF

MENTAL SCIENCE.

EDITORS

J. R. Lord, C.B.E., M.B. Henry Devine, O.B.E., M.D.
G. Douglas McRae, M.D.

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Thirty Shillings per annum net.

The following Mental Hospital Reports for 1924-25 have been received :

Barnwood House.	Kent County.
Birmingham City.	Metropolitan Asylums Board.
Brighton City.	St. Audry's.
Down District.	Salop County.
Glasgow Royal.	Stafford County.
Hertford County.	

Also the following Reports, Reprints, Journals, etc. :

Notes on the Lunatic Asylums, Burma, 1924.
Report of the Lady Chichester Hospital, 1924.
Second Report of the Inspector of Lunatics of Northern Ireland.
Yoga = *Mimāṃsā*, vols. 1, 2 and 3.
Los Estados Asténicos Post-Gripales, by *Dr. Emilo Catalán*.
Mental Disease in the U.S.A. as shown by the Federal Census of 1923, by *Dr. H. M. Pollock*.
Mental Hygiene Bulletin, April, May, 1925.
Incendiarism in Adult Males, by *Dr. H. T. P. Young*.
Surgical and Other Cases of Interest, Perthshire Mental Hospitals, by *Prof. W. C. McIntosh*.
The Distribution of Phosphorous Compounds in Blood, by *Drs. R. V. Stanford and A. H. M. Wheatley*.
The Estimation of Phosphorous Compounds in Blood, by *Drs. R. V. Stanford and A. H. M. Wheatley*.
Report of Conference Proceedings on (a) The Provision of Mental Hospital Accommodation ; (b) The Nursing Service in Mental Hospitals.
The Awkward Age, by *Dr. W. A. Potts*.
Annual Statistical Review, New York State Hospitals, 1924.
36th Annual Report, State Hospital Commission, New York, 1924.
Arterio-sclerosis and Mental Disease, by *Drs. H. M. North and J. Bostock*.
Arbeiten aus der Deutschen Forschung san stalt für Psychiatrie in München, March, 1925.

Books received :

The Development of Psycho-Analysis, by *Drs. S. Ferenczi and Otto Rank* (Monograph Series No. 40).
Studies in Psychiatry, vol. ii (Monograph Series No. 41).
The Fundamentals of Statistics, by *Dr. L. L. Thurstone*.
Clinical Psychology, by *Dr. L. E. Bisch*.
Lifting the Veil, by *Princess Waletha*.
The Cerebro-spinal Fluid in Clinical Diagnosis, by *Drs. J. Gordon Greenfield and E. Arnold Carmichael*.
Tratto di Psichiatria, 3rd Ed., by *Prof. Leonardo Bianchi*.
Eugenica Igiene Mentale, by *Prof. Leonardo Bianchi*.
Psycho-analysis and the Psychic Disorder of General Paralysis, by *Drs. S. Hollós and S. Ferenczi* (Monograph Series No. 42).
Le Roman d'une Épidémie Parisienne: La Kleptomanie? par *A. Antheaume*.
Practical Clinical Psychiatry, by *Drs. E. A. Strecker and F. G. Ebaugh*.
Trial of Ronald True, edited by *Donald Carswell*.

THE ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER, ETC.

Reprints of the "Précis of Evidence given on behalf of the Association, with Appendixes," can be obtained from Messrs. ADLARD & SON & WEST NEWMAN, LTD., at a charge of 2s. 6d. per copy.

U.S. DEPT. OF
EDUCATION

482,996.

9th September, 1925.

With reference to your letter of the 5th ultimo, I am directed by the Secretary of State to inform you that he has laid before the King the petition of the Medico-Psychological Association of Great Britain and Ireland for permission to use the prefix "Royal" in the name of their Association and that His Majesty has been graciously pleased to Command that the Society shall henceforth be known as "The Royal Medico-Psychological Association".

Gentlemen, .

Your obedient Servant.

TO THE
ASSISTANT

Eur Haden

Messrs. Tigan & Co.,

Norfolk House,

VICTORIA EMBANKMENT.

Y.C.2.

THE JOURNAL OF MENTAL SCIENCE

[Published by Authority of the Royal Medico-Psychological
Association.]

No. 295 [NEW SERIES
No. 259.] OCTOBER, 1925.

VOL. LXXI.

Part I.—Original Articles.

The Investigation of Some of the Causes of Insanity.⁽¹⁾

The Presidential Address at the 84th Annual Meeting of the Medico-Psychological Association of Great Britain and Ireland, held at Birmingham, July 7-10, 1925, by Sir FREDERICK W. MOTT, K.B.E., LL.D., M.D., F.R.C.P., F.R.S., Lecturer on Morbid Psychology, University of Birmingham, and Honorary Director of the Laboratories of the Joint Board of Research for Mental Diseases, Birmingham.

FIFTY years ago, that great pioneer in mental diseases, the late Dr. Henry Maudsley, delivered the Goulstonian Lectures on *Body and Mind*, and he said: "The time has come when the immediate business which lies before anyone who would advance our knowledge of mind, unquestionably is a searching scrutiny of the bodily conditions of its manifestations in health and disease."

No progress was possible in the advancement of our knowledge of mental disease until we had shaken off the spell of metaphysical speculation and the traditional doctrine of the mind as an invisible intangible spirit with a separate existence in the body. We now generally recognize the brain as the seat of the psyche, but the functions of mind are dependent upon the whole body, and the harmonious interaction of all its parts.

The time-worn dictum, *Mens sana in corpore sano*, implies that if the body is healthy, then the mind is healthy, but there are numbers of people who suffer with bodily disease who, nevertheless, have a healthy mind; and again, there are numbers of people who have a disordered or diseased mind, but, so far as we have been able to discover, have a healthy body—for example, various types of neuroses and psychoses, and of moral feeble-mindedness. But because we can, by our present methods of investigation, find no material cause for abnormality, it does not follow that subtle biochemical and biophysical conditions, which are dependent

⁽¹⁾ Delivered at the University Buildings, Birmingham, July 7, 1925.

upon inborn functional or bodily defects, are not there. Especially do I refer to the latest structure of evolutionary development—the cerebral cortex. We realize this when a study is made of the action of narcotics upon the brain. In order to act upon the highest levels of the brain weak doses of narcotics are sufficient to affect the intelligence, self-criticism, judgment and control; while lower levels may be unaffected, although the neurons of all levels are of apparently similar structure. The highest level, controlling psychic activity, when subjected to nearly the same conditions as other parts of the nervous system, must, therefore, physico-chemically differ in the fact that it is much more sensitive to poisons. They are the first to undergo the deleterious influence of any form of intoxication, whether the poison arises within the body, as in various forms of auto-toxæmia of deranged metabolism or microbial toxæmia of infectious diseases, or from hetero-toxins—that is, poisons directly introduced into the body, the action of which is proportional to the dose, *e.g.* alcohol. Again, we know that suspension of oxygenation affects this evolutionary level first. This highest level represents the psychic personality of the individual, and is the personal equation, x , due to the inborn tendencies and characters derived from racial and familial ancestry, near and remote. It is the last to come developmentally and functionally the first to go. It is a fact that primitive people suffer with the same psychoses and psychoneuroses as the most cultured people, but the symptoms, *e.g.*, illusions, hallucinations and delusions, are coloured by social usages, customs and beliefs, of which the furniture of their minds is largely constituted. There may, however, be no macroscopic or microscopic difference in structure of their brains discoverable. Is there any morphological condition which would account for arrest of development of this highest level, as in idiocy, or partial arrest, as in imbecility? We know that in cretinism the arrest of development of the cortical neurons is due to insufficiency of thyroxin—a chemical substance essential for the development of the nervous system and its proper functioning. In the development of the cerebral cortex with its countless millions of neurons from relatively a few protomeric cells of the first cerebral vesicle there may be an arrest of development of many of the cortical neurons owing to a vital germinal deficiency. Again, in the rotation backwards of the developing prosencephalon to cover the thalamencephalon, vascular conditions may arise interfering with the nutrition of the rapidly developing neurons. This latter cause may account for some forms of idiocy when there is no evidence of hereditary taint.

Sir Thomas Clouston, in his Morison Lectures on "The Neuroses

of Development" in 1890, said that one of the objects of his lectures was "to show that the most serious of all the pathological facts of brain development are certain mental disturbances in the function of the brain, and that these are associated hereditarily and functionally with, and take their character from, the function of reproduction, which, during adolescence, is attaining its full strength." Our knowledge of the functions of the reproductive-endocrine system was then only in its infancy, but his practical mind regarding the relation of the physiology and pathology of reproduction to neuroses and psychoses is clearly shown throughout these lectures.

THE CHANGE OF THE MENTAL ATTITUDE OF THE INDIVIDUAL IN ADOLESCENCE AND AT THE INVOLUTIONAL PERIOD.

The change in the mental attitude of the male and female at puberty is shown by conduct in a variety of ways, but the emotions and passions are revealed in a similar manner by gesture language by all people, whether primitive or civilized; it is not surprising, therefore, that the psychoses and neuroses which affect human beings with an inborn neuropathic tendency dependent upon or correlated with disorders of repressed or perverted sex instinct present the same fundamental symptom-complexes in all human beings. But all psychic activities are subordinate to, and dependent upon, physiological processes, and I would put forward the premise that a disintegration of the psychic unity may be conditioned by a disintegration of the physiological unity. The functional correlation of mind and body is shown by the profound influence the reproductive-endocrine system has in the evolution at puberty of the sentiments and passions, which have their roots in the sex instinct. Not only the highest altruistic sentiments of love, pity, and devotion, but the baser self-regarding sentiments, *e.g.*, pride and vanity, arise from the biological instinct of self-display for attracting the opposite sex manifested in savages as well as civilized people by a regard for personal appearance and adornment by dress, ornaments and jewels.

Again, the cause of jealousy is frequently resentment of the loss or suspected loss of the love of another for whom there is a sexual attraction, which may find vent in hatred and vengeance. In the female these sentiments are more prolonged, more contemplative, and are felt more; and because she, unlike the male, is unable herself to react openly, impulsively, and violently upon her rival, the sentiment is generally repressed, causing a mental conflict which may end in a neurosis or psychosis. It is not surprising, therefore, that disappointed love is by no means an uncommon assigned cause of a mental breakdown. But sexual love cannot

be separated from self-love, with which it constantly interacts, and a broken-off engagement, by wounding the *amour propre*, causes shame and humiliation, which the maiden represses and conceals because she expects little real sympathy from her own sex, and not infrequently she fears ridicule or contempt.

In adolescence the natural self-assertiveness of the young animal to become independent and leave its parents to find a mate is shown in the human adolescent by vague longings and desires, while old affections are allowed to lapse; and this becomes a disturbing mental element, for it is not understood why the affections of parents and family and the home in which they were born and bred no longer satisfy the desires. At first there is an abyss between aspiration and realization, and hopes may be dashed by disillusion, but the normal individual gradually develops his character, his virtues and his vices, and the difference of types of character due to the multiform inborn racial and familial ancestral dispositions becomes more and more clearly pronounced, and should a normal evolution of character not take place, there often results a misunderstanding of the true position of life and failure to grasp realities, which causes disappointment, jealousy, hate and other unhappy traits of character. The individual with this undeveloped character becomes brooding, contemplative and "shut in," and fails to get in touch with the realities of life. This "shut-in" personality may be the first sign of an adolescent neurosis or psychosis.

The function of reproduction stands in a different position from all the other functions of the organism. It arises differently, ceases differently, and it is more affected in character according to the sex of the individual than any other function. It is not entirely dependent upon the individual's sex organs, but upon the functionally correlated endocrine system of glands as well. The sexual desire may exist even after the testes or ovaries have been removed, but it must be remembered that the interstitial glands (Leydig cells) exist in the male embryo before the generative cells come into existence. Having regard to Steinach's experiments, their hormones may determine male sexual characters in all the cells of the body, including the central nervous system.

Steinach castrated male frogs and showed that these animals no longer exhibited the clasp reflex in the breeding season. He showed that injection of testicular extract restored the clasp reflex. Again, he showed that an extract of the nervous system obtained from frogs during the breeding season restored the clasp reflex in the castrated animals. Controls did not give these results. He concluded that the sexual hormone had a special affinity for the nervous system in which it may be stored. Inhibitory impulses arising in the brain lower the spinal reflex excitability, the testicular hormone regulates and controls the nervous mechanism. "How much more complicated must be the physiological behaviour of the Mammal or Man, and one can realize how manifold must be the variations in psycho-sexual behaviour which has arisen on so complex a psychological basis" (Lipschutz).

A regressive atrophy of the interstitial cells occurs after birth, and about the fourth month I have found the seminiferous tubules are twice the size of those at birth, and instead of being separated by loose connective tissue containing abundant Leydig cells, as at birth, the tubules are now closely approximated and the Leydig cells have almost disappeared. They do not reappear until puberty, when the generative function commences; the sexual hormone from the interstitial cells then passes into the circulation and determines the bodily and mental secondary sexual characters.

Seeing that the male sexual hormones are active for about six months in pre-natal and post-natal periods, it follows that this influence has been operating on all the somatic cells, including the nervous system, during that time. And, if there be a selective storage of the sexual hormone in the nervous system, as Steinach's experiments indicate, then a masculine behaviouristic tendency may thus early be engrafted upon the nervous system. Moreover, by its sensitizing influence, the primary male characters are made dominant in all the bi-sexual somatic cells. Castration, even in early life, cannot remove entirely the effect thus early implanted in the nervous system, nor affect the entirely male characters already determined in the tissues; what it can do is to inhibit the appearance of the male *secondary sexual characters*.

There can be no development of sex characters without all the other organs of internal secretion participating; all these glands, and especially the thyroid, the pituitary and the adrenal, we know are influenced by the internal secretion of the sexual glands, and the latter are undoubtedly influenced by the former; indeed there is a harmonious functional interrelation of the reproductive organs and the whole endocrine system. In fact, the interstitial gland may be regarded as a part of the endocrine system of glands; thus, in a case of dystrophia adiposo-genitalis which I have recently investigated, there were infantilism of external genitals and atrophied testes; both interstitial cells and spermatogenic cells were replaced by fibrous tissue and fibroblasts. Associated with this was an atrophied pituitary and an atrophied thyroid gland.

But it may be asked, What about the sexual hormone in the female? It is generally assumed that the source of this is connected with the development of the Graafian follicle. I have found that the ovaries at birth and in early infancy contain numerous immature Graafian follicles. It is generally assumed that the cells of the zona granulosa and the internal thecal cells of the follicle secrete a hormone that determines female characters; it may therefore be supposed that a continuous conversion of primordial follicles into immature Graafian follicles (that subsequently become

atretic follicles—maturation and dehiscence not occurring) is for the purpose of providing a feminizing hormone to counteract the pre-established male dominance. Should this not occur to a normal physiological extent, having regard to the selective storage action of the hormone in the central nervous system as revealed by Steinach's experiments, there would occur, as a result, a tendency to masculination, especially in mental characters.

It will thus be seen that a male or female sexual sensitizing influence is exercised at a very early period of life on all the cells of the body. In the male this influence ceases shortly after birth, and the whole of the somatic cells of male and female are, until the dawn of adolescence, engaged in growth and self-preservation in preparation for reproduction and preservation of the species.

In cases of hermaphroditism both male and female interstitial cells are present owing to the existence either of an ovario-testis or an adrenal tumour in the female, the cortex of the adrenal having, in the course of embryonic development, included testicular interstitial cells. Such tumours may have an influence before birth and cause a combination of male and female external sexual characters—hence the term "hermaphrodite" (*Ερμῆς*, Mercury, and *Ἀφροδίτη*, Venus).

But these are extreme cases. There are masculine women and effeminate men; and having regard to the obvious influence of sex hormones in determining psycho-physical characters and conduct in men and animals, the question naturally arises whether a dominance of one or other sexual hormone acting in early life may not lead to these conditions. Thus a failure to form Graafian follicles and the internal secretion in early life would leave the male dominance unchecked.

There is considerable evidence to show that the primitive ovary is hermaphroditic—a view which was confirmed by Kohn as lately as 1920. While the testis develops nearly directly from the undifferentiated original mass, the ovaries pass through a stage in which the cortical part may be considered female, but the deeper or medullary part as male or testicular. There is in the early stages then two factors which influence somatic sex characters. In the majority of cases the male sex hormone completely dominates in the male, and to such a degree that shortly after birth its action is no longer required; whereas in the female the corresponding sex hormone must continue to be formed by Graafian follicles in order to maintain female characters. We can explain, then, women with masculine tendencies by a failure in the development of interstitial cells producing female sex hormones in early life by an inadequate Graafian follicular development. On a similar

hypothesis we can explain effeminate men by supposing that the normal male sex hormone is inadequate to determine complete male sex dominance. Of course that leads up to the question whether sex is determined primarily in the fertilized ovum, as the discoveries of the sex chromosomes appear to indicate, or whether the somatic blastema is asexual, and the determination of each sex development is dependent upon the predominant sexual hormone in pre-natal and post-natal periods of life. This hypothesis of imperfection in sex determination causing masculine women and effeminate men, whereby *chance may lead to habit formation and acquired homosexual tendencies*, which gradually become so firmly installed, fixed and organized as to replace the normal physiological attraction to the opposite sex, is more probable than that there is such a thing as inborn homosexuality.

At puberty there is a reviviscence of the interstitial cells in the male, and their secretion now exercises a sensitizing all-pervading energizing influence upon the whole organism, which continues until the period of the climacteric determines the end of the vital urge or libido in its intensity and power. This "change of life" occurs not only in women, but in the male sex we have to reckon with it and its abnormal transformations, to some extent, even in the senile period of life. It is not sufficiently realized that the climacterium may, in some men, occur between 55 and 65. This may be manifested by a marked mental and bodily change, which in some, but by no means all cases, is associated with arterio-sclerosis. There is a type of neurasthenia and of involutional melancholia which probably in most cases, and certainly in some, has its origin in testicular retrogression and concomitant endocrine gland changes. The melancholia, and frequently suicidal tendencies, shown by these patients reveals the fact that the *joie de vivre* has ceased.

Mendel speaks of the *climacterium virile* with lack of secretional control and tendency to shed tears, combined with manifest signs of depression, disinclination for exertion, lack of will-power and irritation, other symptoms sometimes prominent being dizziness, sense of pressure in head, hot flushes and palpitations of the heart. It is not infrequent to find a glycosuria in these cases, and its continuance testifies to a permanent disorder of bodily metabolism which may be explained by endocrine deficiency or imbalance; or possibly to hypothalamic changes and resulting functional disorder of the vegetative nervous system, which it controls.

THE INBORN CHARACTERS OF MIND.

The furniture of the mind is the memory store of our experiences and the bonds that unite them. The quantity and quality of the

furniture of the mind depends firstly upon the inborn germinal raw material begotten with the body and derived from species, sex, race and ancestry, giving each individual a special predetermined plasticity to receive and store impressions and react to them. This raw material of inheritance upon which psycho-physical energy, durability, educability, imagination, temper, emotivity, moral and æsthetic sense, upon which the personality so largely depends, is inborn. These fundamentals of mind are begotten with the body and predetermine character and conduct, as was clearly proved by Francis Galton that dissimilar twins remained dissimilar in mental and bodily characters when brought up in the same environment, while similar twins brought up in different environment remained similar in mental and bodily characters. This is a convincing proof of the fact that the raw material basis of mind is begotten with the body. If inborn good qualities are deficient or absent there will be, in spite of favourable environment after birth, intellectual, æsthetic or moral feeble-mindedness of various forms and gradations. Again, if there be inherited a disproportion and a lack of harmony and integration of these inborn factors of the raw material upon which mentality is based, an unbalanced mind is likely to develop, which will show itself in various departures in conduct from that of the normal individual; it may be in the form of eccentricity, mysticism, fanaticism or the psychoneuroses, *e.g.*, hysteria, neurasthenia, psychasthenia, epilepsy, megrim, asthma, or the psychoses (the true insanities), amentia, confusional or toxic psychoses, dementia præcox, manic-depressive or periodic insanity, dementia presenilis and involutional melancholia, as distinct from acquired organic brain disease, such as general paralysis. But with this inborn instability of the highest evolutionary level, the study of pedigrees shows there is very frequently creative imagination and genius in arts, literature and science in members of a stock having insanity or epilepsy. Chances or circumstances may have determined the one or the other evidences of the instability. Also many of the most notable personalities in history were either at one time insane or exhibited mental instability and genius. There is truth in the lines of Dryden :

"Great wits to madness sure are near allied,
And thin partitions do their walls divide."

Again, a race, such as the Jews, which has been subjected for eighteen centuries to persecution, affords an instance of natural selection and survival of the fittest, so that only those Jews who were possessed of the highest mental faculties and capacity of making

new adjustments during this long period of adversity have survived. It may be assumed that quickness of apperception and readiness to seize opportunities have developed a high degree of racial plasticity of the cerebral cortex in connection with its evolutionally latest functions associated with the social instinct—an instinct which by natural selection and survival of the fittest in the course of eighteen centuries of persecution has taken on certain specific racial characters admirably described by Nietzsche. But this high degree of plasticity is necessarily associated with a greater liability to mental instability, and I believe this more than intermarriage is responsible for the high percentage of psycho-neuroses and psychoses in Jewish stocks; often, however, this plasticity and instability is associated with genius or great talents in literature, the arts and sciences.

NEUROPATHIC AND PSYCHOPATHIC PREDISPOSITION IN RELATION TO PSYCHO-PHYSIOLOGICAL STRESS.

The study of relatives in the London County Asylums by a card system and by the method of systematic inquiry and construction of a large number of pedigrees,⁽²⁾ and the investigation of statistical data relating to the age at onset of insanity in the offspring of insane parents, afford, to my mind, conclusive evidence of three facts in relation to the *causation of mental disease*:

- (1) The importance of a neuropathic and psychopathic heredity.
- (2) The special liability of the neuroses and psychoses to occur in adolescence and the involutional periods of both male and female sexes when the sexual function matures and wanes.
- (3) The influence of child-bearing and lactation in women acting as exciting causes.

That the inborn predisposition is the most important fact in the development of neuroses and psychoses is also shown by the frequency with which these various psycho-neuroses and psychoses occur at periods when normal physiological changes occur in the body, *e.g.*, adolescence, when the sex instinct is aroused and matures, exciting a new vital urge in the whole body, and the involutional period when it wanes.

Again pregnancy, parturition and lactation are normal physiological processes of the sex instinct, yet a number of cases of insanity in women designated puerperal mania, or lactation mania, occur as a result of auto-toxæmic stress occasioned by a normal physiological process. Even in cases of septic origin a psychopathic predisposition cannot be always excluded. For many women have puerperal septicæmia, but do not become insane. The term "puerperal mania" is a misnomer in a way, for the cases belong

to three groups: (1) Exhaustion psychosis or toxic psychosis; (2) manic-depressive insanity; and (3) dementia præcox.

(1) The greater the influence of the extrinsic cause, especially if it be pathological, *e.g.*, toxic conditions, the more probable is the recovery by treatment removing the source of the sepsis, and the liability to a recurrence is less.

(2) Emotional shock, worry, anxiety, insomnia and exhaustion are also regarded as important exciting factors of insanity. But the war has shown that these two groups of exciting causes are not of such primary importance as was suspected, for it was observed that there was no great increase of insanity among the women in Galicia and East Prussia when they had to flee on account of the invasion by the Russians in the Great War. Moreover, Bonhöffer found only 5 insane among 10,000 Serbian prisoners who had been subjected to every form of stress and disease.



FIG 1.

(If *E* represents mental and bodily extrinsic factors, and *I* inborn predisposition, the more of *E* that we can find as a causal factor, the more favourable is the prognosis.)

STATISTICAL DATA RELATING TO INHERITANCE AND INSANITY IN THE PERIODS OF ADOLESCENCE AND INVOLUTION.

The importance of these physiological states of adolescence and involution in the incidence of the onset of insanity is shown by the two graphs (Figs. 2 and 3) based upon an investigation of the age at the time of first attack in 508 pairs of parent and offspring, from records of 464 insane parents of 500 insane offspring.

These curves in the offspring show 47·8 *per cent.* of 500 offspring who became insane in adolescence at or before the age of 25. These 47·8 *per cent.* of cases of adolescent insanity may be divided into three groups:

(1) Exhaustion psychosis, confusional insanity or amentia, and who were discharged recovered.

(2) Recurrent or manic-depressive insanity, discharged but re-admitted on one or more occasions. As a rule the length of the period of asylum detention increased upon each attack, some cases finally passing on to dementia and detention till death.

(3) Primary dementia of adolescence or dementia præcox. In

the vast majority of cases these were progressive and there was permanent detention till death. These cases make up a large proportion of the chronic cases in asylums.

(4) The imbeciles are relatively few in number, as they are sent to the mental hospitals of the Metropolitan Asylums Board. A few are admitted to the London mental hospitals on account of the onset of acute symptoms. There are also a few cases of juvenile general paralysis, but the great bulk of the cases belong to 1, 2 or 3.

These statistical data were prepared in 1911.

In 1917 I made a further analysis of relatives' cards since 1911, a period of six years. This analysis was limited to insane parents

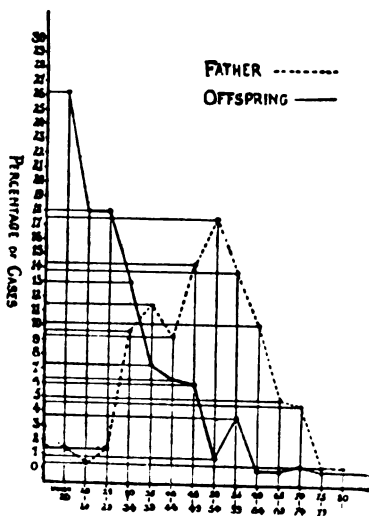


FIG. 2.

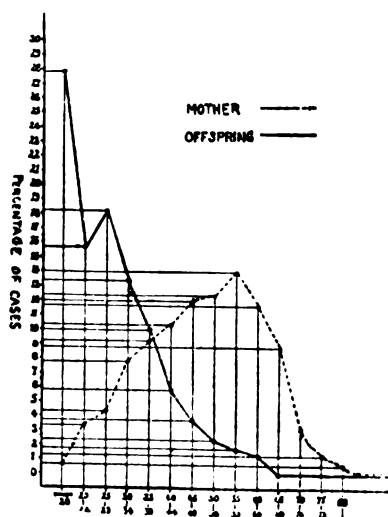


FIG. 3.

of offspring, of which a diagnosis of dementia præcox was made, and instead of 47·8 *per cent.* there were 75 *per cent.* of the 69 cases diagnosed as dementia præcox admitted at the age of 25 or under. Seeing that a great many of these cases were either insane before certification or by their conduct had given prodromal evidence of oncoming dementia, it is highly probable that all the cases really commenced in the adolescent period.

Prior to the war the two sexes were about equally represented in the admissions. During the war the male cases of dementia præcox were diminished by one-half. This may easily be accounted for by the fact that a number were conscripted in the early states of mental affection, or the disease developed after their admission to the army. It was found that 14 *per cent.* of the total insane who served in the army were cases of dementia præcox, which

proves the truth of the assumption I have made in respect to the great fall in the admissions on the male side during the war.

A comparison of the two curves of the parents shows a notable difference. The curve of the fathers does not commence to rise till after 25, and the 30-40 peak corresponds with the incidence of general paralysis of the insane. It may be remarked that males suffering with general paralysis are four to five times as numerous

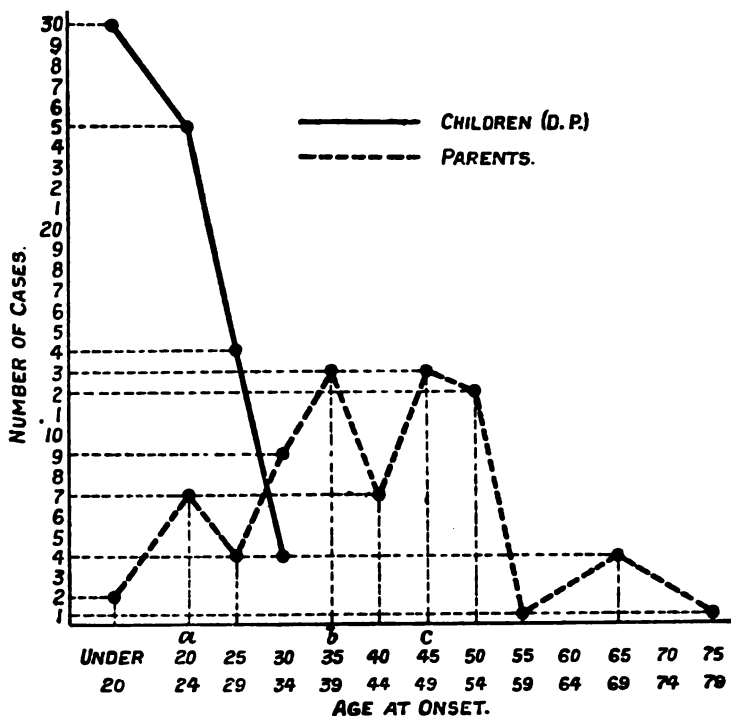


FIG. 4.

as females, but this does not account for the difference in the male and female curves. This difference in the curve of fathers and mothers is due to the incidence of child-bearing and lactation, which causes a steady continuous rise to the climacterium in the maternal curve, the 50-60 peak to the involutional period.

It was also computed that only 7.9 *per cent.* of the children were born after the first attack of insanity in the parent.

RECURRENT INSANITY IN WOMEN AND CHILDBIRTH.

An analysis of 642 female admissions to three London County Council mental hospitals during the year 1911 showed 148 recurrent

cases, of whom 32 (12 *per cent.*) had children between the respective dates of admission. The inference that can be drawn is that rather less than one-fifth of the recurrent cases have children after their first attack of insanity. This may be explained by the adoption of contraceptive methods, but my investigations suggest another important cause, *viz.*, early involutional changes in the ovaries in all the psychoses.

How can we explain manic-depressive insanity? In this disease of the mind we have periods of complete sanity alternating with insanity. This must imply that there was no suppression of function, only temporary suspension of the highest evolutionary levels, and, following the teaching of Hughlings Jackson in his illuminating address, "The Factors of Insanities," we may, using Jackson's own words, look upon "the illusions, hallucinations, delusions, extravagant conduct and abnormal emotional states in an insane person as signs of activity," in what remains intact of the functionally disorganized highest levels. These positive mental states which are regarded as the signs of insanity "imply co-existing negative mental states, defective perception, less reasoning power, less adaptation to present surroundings, and absence of the finest emotions in comparison with the former sane person. To take examples, any illusion implies that a thing is *not* recognized as it would have been before the insanity, and this means that there is a co-existing negative mental element; any delusion implies that the patient does *not* believe as he would have done before he underwent dissolution, and this implies that there is a co-existing negative element."

Alcohol is generally regarded as a stimulant, whereas it is really a narcotic. It narcotizes the highest evolutionary level of self-control and inhibition and the self-regarding sentiments, determining judgment and volition. Under social conditions of jovial festivity, bright lights, the opposite sex, conversation and song, alcohol appears to be a stimulant and to cause emotional excitement, a brisk flow of ideas and their outward expression in speech and conduct. But if alcohol is taken under conditions where external stimuli are lessened or removed, such as isolation in an armchair in a quiet room, the effects are quite different: *viz.*, a slight feeling of "light-headedness" followed by an increasing heaviness and disinclination for effort, soon passing into drowsiness and finally sleep. In both cases the alcohol has narcotized the highest evolutionary level, but in the former the negative state has left the next level open to perceptual stimulation, and we have a brisk flow of ideas and emotional expression. The true temperament of the individual is shown, hence the saying "*In vino veritas.*" One individual may

become elated, jovial, boastful, boisterous and gay; another maudlin, sentimental, sad and tearful—*vin gai* and *vin triste* of the French.

The self-regarding sentiment is affected in various ways, *e.g.*, financial, domestic, sexual, social anxieties, and worries, attended by despondency. Therefore alcohol, by its narcotic effect on the highest evolutionary level, tends to banish sorrow till to-morrow, and may be beneficial if it is not allowed to become a master instead of a servant. Contemplative fear arrests digestion and assimilation, and upsets the general metabolism of the body, and this reacts back on the highest level of the brain.

It has been shown experimentally and clinically that suspension of function of the highest levels of the cerebrum may be caused by suspension of oxidation processes (Mosso's experiment). It has been shown also that microbial toxæmia may cause varying degrees of suspension of function of the highest levels, causing delirium and mental confusion. In the insanities which recover without any dementia we assume there was only a suspension of function in varying degrees of intensity, and that this was brought about by circulating toxins causing synaptic neuronc dissociation in the higher levels. If the highest autocritical inhibitory level, *A*, be assumed to be functionally abolished, and the next level, *B*, perceptual and ideational, only partially affected, then this level will—owing to the abolition of *A*—overact, but to a limited extent, owing to this level also being affected, although to a less degree than *A*. This will be manifested by disordered ideation—day-dreams and strange conduct. If there is a complete suspension of function of *B* a catatonic stupor results, broken at times by sudden uncontrolled impulsive actions, no doubt excited by a partial return of ideation in the disordered form of illusions, hallucinations and delusions.

The fundamental clinical disorders of dementia præcox are a weakening of judgment, of attention, of mental activity and of creative ability, the dulling of emotional interest and the loss of energy. Lastly there is the loosening of the inner unity of the psychic life. Now, if we assume that the neuronc changes show first a progressive suspension of function of some neurons associated, secondly, with such intense biochemical and morphological changes in other neurons as to indicate the suppression of function, we are able to explain remission or partial remission of some of the symptoms, and sudden changes from stupor to impulsive behaviour.

Suspension of neuronc function due to hypo-function from defective oxidation processes or synaptic dissociation caused by auto- or heterotoxic conditions may vary in intensity and degree,

but suppression of function owing to germinal lack of durability is incapable of any remission, but is progressive, so that even when a remission of some of the symptoms occurs there is a residuum of weak-mindedness—*dementia simplex*—which is usually progressive and continuous. It should be mentioned that the neurons are, in the normal individual, permanent cells adapted for a prolonged life, and protected by special anatomical and physiological conditions from injury and disease.

Now it is known that some cases which at first clinically appear to be cases of *dementia præcox* recover. Moreover, some cases of confusional insanity and benign stupor, described by Hoch, may present a clinical picture of *dementia præcox* and recover completely. It must be supposed that these cases are due to a hypo-function with synaptic dissociation, and we might find a general condition of lipoid granules in the neurons, with basophil chromatolysis and disappearance, or partial disappearance, of the Nissl granules, but no evidence of nuclear degeneration.

If there were a biochemical and morphological degeneration of the nucleus it would point to a condition which would end in suppression of function, although this condition does not necessarily imply death of the neuron and atrophy of the axon. The morphological changes implying suppression of function are found especially in the cortex and particularly the cortex of the frontal lobe (highest evolutionary level), in which neuroglia proliferation is most marked. Associated with this are universal changes in the various regions of the brain pointing to hypofunction, *viz.*, lipoid granules in the cytoplasm, and in many cells an oxychromatin or a tendency to an oxychromatin reaction of the nucleus.

The affection of the stellate intercalary cells which enter into the synapse, and the evidence I have adduced of the importance of these cells in connection with oxidation processes productive of neural energy and transmission of nervous impulses, suggest that a hypofunction or suspension of function of these neurons would lead to a synaptic dissociation and the coming and going of symptoms; or where there is a permanent morbid change, to a suppression of their function with permanent dissociation.

We have thus two morphological conditions which will account for fundamental disorders, and the nature of these disorders will depend upon the cerebral structures affected, whether in such a way as to produce suppression or suspension of function. Naturally the nature of the mental disorders will also depend upon the localization of levels and the relative intensity of the suspension, or suppression of function of the neurons.

It is quite probable that there is a hypo-function of the whole

of the bodily tissues ; there is certainly a diminished vital resistance to microbial infections. And I have shown that there is a regressive atrophy of the reproductive organs and of the pituitary and adrenal glands in the majority of the cases diagnosed as dementia præcox. A large percentage of these cases of dementia præcox died of tuberculosis, but my observations show that exactly the same neuronie and reproductive endocrine gland changes can be found in dementia præcox subjects that have died of acute pneumonia, or as in a case of acute dementia præcox described without any intercurrent affection to account for death ; and I will now show some illustrations of this case. Although it is common to find stupor in patients affected with active tuberculosis, and although the absorption of toxins may, therefore, have played a part in the production of some of the symptoms in dementia præcox, yet I have formed the conclusion that the essential cause of this disease is an inborn germinal defect of the body generally, but especially affecting the highest evolutionary levels of the brain and the reproductive endocrine glands.

In conclusion, it may be thought, from what I have said, that the outlook in regard to the prevention and curable treatment of insanity is rather hopeless. That is not so: all I wanted to show is that we must recognize the great importance of the inborn factor in the production of the psycho-neuroses and psychoses.

The possibility of variations and mutations in the highest plastic evolutionary level must necessarily be associated with a certain degree of physico-chemical instability. It is that which makes it a more complex, refined and delicate mechanism, and therefore more susceptible to the influences of all toxic conditions of the blood, to the influence of good and bad imitation and suggestion, to the acquirement of good and bad habit formations in early life, to the effects of physiological stress at the critical periods of life, and to all forms of emotional shock, prolonged anxiety and contemplative fear. This higher degree of plasticity is the price a nation has to pay for a high degree of civilization and the elimination of many of the factors of natural selection and survival of the fittest. The effect of anticipation or the tendency to the advent of mental disease of the children of insane parents in adolescence, together with regressive atrophy of the reproductive organs, leads to a tendency to end or mend a stock. To regard disease as unpreventable or incurable is, as Francis Bacon said, to establish negligence and carelessness, as it were, by a law, and screen ignorance from reproach. It is our duty as medical men to practise general medicine in its broadest sense, and see if there is any bodily condition which can act as a cause or contributory factor in the production of the abnormal psychic state. By prevention and early treatment of

all those causes, whether physiogenic or psychogenic, which act as exciting factors in the production of the psychoses and psychoneuroses, it may be hoped that the abnormal mental states constituting them may not become firmly installed and organized, thereby causing a vicious circle to be established. For the persistence of abnormal mental states produces digestive, assimilative and metabolic disorders of the body, and auto-toxæmia, which can react back on the highest evolutionary level of the brain, tending to permanent functional disorder and eventually to its partial or complete abolition—secondary dementia.

A streak of insanity, a streak of genius and creative imagination is not harmful to the race. The danger to the race is not from a tendency to a high degree of plasticity of the highest evolutionary level, but to an increase of an inborn tendency to a functional or organic regression of it, resulting in various degrees of imbecility. As the higher-grade imbecile possesses the animal passions and is fertile, it follows that more than a streak of mental deficiency in a race constitutes an urgent social problem of national importance. Hitherto nearly all the efforts of the State have been towards legal detention of the mentally afflicted (under humane conditions it is true), but little has been done in the way of prevention or cure. I hope that this Society will, in the future, take an active part, firstly, in promoting research in the biological, social and psychological causes of mental disease, with a view to prevention; and secondly, in furthering the application of the principles of general medicine, including psychotherapy, with a view to the cure or alleviation of mental diseases and disorders.

(2) In the *Archives of Neurology*, vol. vi, two valuable communications are given: "The Investigation of Twenty-five Pedigrees of Insane Persons," by Dr. Hill Wilson White; "The Investigation of a Number (Ten in all) of Family Histories of Patients in Cane Hill Asylum," by Dr. J. C. Wootton. These are very carefully constructed pedigrees, extending from three to six generations and including collaterals.

Encephalitis Lethargica—its Psychological Implications.⁽¹⁾ By
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THE gradual rise in the yearly incidence of encephalitis lethargica, culminating in the serious epidemic which marked the first half of the past year, and the tragic results which so often follow, have invested this disease with a sinister importance. But there are other reasons which make this infection peculiarly suitable for

(1) A paper read at the Annual Meeting held at Birmingham, July 8, 1925.

consideration at a meeting of the Medico-Psychological Association. These reasons have been well described in a recent paper by von Economo, who gave the name to the disease in 1917. He writes⁽²⁾ :

"Encephalitis opens up an entirely new outlook in psychiatry and neurology, and offers new possibilities for investigation, which it is to be hoped will bring us to a better understanding of the psychoses and neuroses. It is, moreover, not only a new disease in itself, but it has given us an entirely unexpected insight into the psychological and physiological mysteries of mental mechanism—knowledge which will perhaps exercise a great influence upon others besides the medical profession."

Although the acute stages of the disease are often so indefinite (certainly so far as the last epidemic is concerned), that it is not always possible to arrive at a diagnosis, yet the later manifestations, both somatic and psychic, are so constant in their association that they form a syndrome which gives a clinical picture that is characteristic of a definite and distinct morbid entity. This post-encephalitic syndrome has an important bearing on the question of the relationship of this infection to the influenza epidemics of the past. Certain observers, notably Hamer and Crookshank, have regarded encephalitis as a "trailer" epidemic which succeeds the receding wave of influenzal incidence. But the term "influenza" includes so varied a congeries of symptoms, which offer different clinical pictures as epidemic succeeds epidemic, that this observation does not carry us very far. One fact in this connection is, however, noticeable, *viz.*, that, accepting the view that encephalitis belongs to the Heine-Medin group of infections of the central nervous system, there has been a very marked alteration in the relative incidence of the different members of that group in the last few years. Thus the curve of incidence of cerebro-spinal meningitis has dropped steeply and continuously since 1917, while anterior poliomyelitis has shown a similar but much less pronounced fall, yet on the other hand encephalitis lethargica, since it became a notifiable disease on January 1, 1919, has shown a rapidly ascending rate of increase, culminating in the steep epidemic rise which was so conspicuous, especially in some of the larger cities, during the year 1924. Since the beginning of the present year there has been a more gradual fall.

The infection is often ushered in by constitutional disturbances, such as slight diarrhoea and sickness, and the whole clinical picture is one of a generalized toxic condition, which, however, falls with chief force upon the nervous system. In this connection the theory introduced by Levaditi (*Monographies de l'Institut Pasteur*, 1922) is of extraordinary and illuminating interest. He draws attention to the fact that certain ultra-viruses have an elective

affinity for tissues derived from the embryonic ectoderm, *e.g.*, skin, cornea and nervous system, whereas others have a predilection for mesodermic tissues, *e.g.*, peritoneum, lymphatic glands and the blood. These neurotropic ultra-viruses, he believes, can be arranged in a series in accordance with the character of the affinity for different ectodermal tissues. Thus variola has a compelling cutaneous affinity, but occasionally attacks the central nervous system, producing coma or an encephalitic hemiplegia, but especially a myelitis or peripheral neuritis, which may lead to the pseudo-tabetic *ataxie variolique*. Use is made of the readiness with which the cornea is involved in the Paul test for variola by inoculation of the scarified cornea of a rabbit. Next in the series is the encephalitic group, including the so-called salivary virus, that of herpes labialis and that of encephalitis. The virus of rabies, though not showing clear local lesions, *e.g.*, of skin or cornea, may use these as tracts of entry to the central nervous system, for which it has a compelling affinity. Lastly poliomyelitis shows no affinity for epidermis or cornea, but only for the central nervous system, and though it may produce a polio-encephalitis, it exhibits a special predilection for the grey matter of the anterior horns. Such a view, it may be added, removes cerebro-spinal fever, due to a definite coccal invasion of the meninges, from its Heine-Medin associations.

But the problem which concerns us is neither the bacteriological nor the epidemiological characters of the disease, but its psychological aspects, especially those which may be regarded as the later manifestations of the disease.

As my personal experience has been entirely confined to the disease in children, I propose to limit my consideration to the age-group five to fifteen years. Such a limitation has, however, certain advantages, for during this formative period of life character is comparatively simple, and behaviour less sophisticated than in adult life. At a paper read before this Association in 1921, and again before the Northern and Midland Division in April, 1922, I drew attention to the frequency with which certain moral changes are found to supervene in children, more especially in the direction of persistent thieving and lying. Since that date similar sequelæ have been described in America, Austria, Denmark and elsewhere. This failure of adjustment to the social order occurs so frequently, and under such various social conditions, that there is clearly a definite causal relationship between the physical conditions induced by the infection and the subsequent aberrations of conduct. But apart from these actual delinquencies, there are other features of behaviour, *e.g.*, the spitefulness and disobedience, the noisy excitability at night, and the persistence of certain perverse habits, such

as tearing the clothes to pieces, the frequency of tics and habit spasms, etc., which seem to bring the disease into a definite relationship with certain types of mental disorder. These and other cognate character-changes raise certain other psychological problems of considerable interest and importance, especially the question of the relation of volition and moral responsibility to morbid physical states. If there is, in these cases, a causal relationship between the psychical phenomena of the behaviour and a physical lesion of the brain, we are driven to the conclusion that other cases of perversions of conduct and failure of control, such as mark that very indefinite class designated "moral imbeciles," may have a similar causal relationship, even though no clear evidence or history of illness, such as encephalitis, is forthcoming. In this connection, it may be mentioned that although sixty children were notified in 1924 to the Medical Officer of Health for Birmingham, no less than forty unnotified children have been presented to me for examination on account of the later sequelæ, in whom the initial symptoms were so slight as to escape recognition at the acute stages of the infection, but whose medical history gave clear and unequivocal evidence of encephalitis.

The following case illustrates this difficulty:

G. R—, born June 12, 1911, the youngest boy in a family of three brothers, but with four younger step-sisters.

In May, 1924, had "influenza." No history of squint or diplopia. Is said to have been "dazed and sleepy." In July was admitted into the infirmary for 14 days. On discharge was completely changed in character. The following is his mother's description of his behaviour*: "The first occasion my husband and I had been out, and when we came home there were three neighbours in the house. He was keeping them at bay with a knife and a chair. Once or twice he has nearly pulled my hair out. One time he fair flew at his father. He's been sleeping by day but at night he's been jumping and twirling. He makes such hideous noises when he's about. He's on all the time. At times he's absolutely ravenous with eating. He gathers and accumulates all sorts of rubbish as no one would think of. We've often to turn out his pockets—bits of tin, bits of string and such like. And he'll sit and he'll laugh till he's almost in hysterics. He did it on Sunday night last for a good twenty minutes. He's more for playing with the younger children, but he's very irritable with them."

This lad, whose conduct his mother has so graphically described, is usually a nice-spoken and well-behaved boy with ready intelligence and good response. Reads well, with good expression and knowledge. Calculates accurately and quickly. His headmaster, however, reports that there has been a general falling off in his work. He has shown no tendency to steal or to erotic manifestations. Apart from considerable pallor, there are no signs of illness except a fine tremor of the hands. He is said to have "giddy turns," but has never fallen, and there are no other signs suggestive of *petit mal*.

The appearance of choreiform movements in some children as one of the early signs of disorder led, in a certain number of cases, to a diagnosis of chorea. In none of the series did the choreiform

* Throughout the paper verbatim statements by parents are placed in inverted commas.

movements persist to the later stages, nor have I been able to find any correlation between their presence and the degree of emotional instability subsequently exhibited. The psychic manifestations of chorea are well known, and exhibit a certain similarity with those which we are now considering. There may be the same faulty emotional control with outbursts of irritability, wilfulness, with alteration of disposition, and character changes, together with a fall in the powers of attention, and enfeeblement of memory. A more interesting parallel, however, is to be found, both in the early onset of acute "tremors" and in the pathological lesions of poli-encephalitis of the cerebello-rubro-spinal system described by Miller (*Brain*, 1909) and Parsons (*Birmingham Medical Review*, April, 1910). The following case illustrates the early onset of choreic symptoms, which were succeeded by typical emotional changes :

F. F.—, born March 1, 1912. Went to bed apparently well on April 18, 1924. At 6 a.m. woke up, calling out, "Oh! the gorilla," and fancied that there was a motor car with people in it outside the window. The following morning was noticed to be fidgeting and cutting up a pair of gloves. Taken to a doctor, who diagnosed chorea. Says that he saw double. "All the pictures seemed far away from me." No squint or ptosis was noticed. Was kept in bed for a month, during which tonsils and adenoids were removed. On getting up slept much during day, but got very excited at night time. "Used to get up and toss the bed-clothes about, and walk about the landing singing and saying his prayers."

Present condition.—Knee-jerks normal. No squint or ptosis. "Very irritable." "He seems to be of a jealous nature; his temper seems to get over him." No thieving propensities, and general behaviour good. No chorea, and only a very faint tremor of fingers. Intelligence very good.

It may be remarked that in the chronic condition, somewhat unfortunately labelled as "Huntingdon's chorea," definite mental symptoms occur as one of the essential elements of the clinical picture. Diefendorf⁽³⁾ thus describes them: "These symptoms consist chiefly of a history of excessive nervousness, irritability and excitability, which appear in childhood and persist through puberty and early manhood, usually becoming more pronounced as the individual approaches middle age." Again of another series he writes: "The usual order of the development of the symptoms was first the appearance of an increasing emotional irritability, in passionate outbursts, abuse, and sometimes even violence and destruction of articles in the environment . . . in addition there occurred at the same time a gradually increasing *emotional deterioration*. Some patients become intemperate, others immoral. A number of my men patients gave up regular occupation, and for a number of years followed the life of a tramp. . . . The patients lost their sense of responsibility in reference to their own welfare and that of their family." Von Economo describes three main types of the disease, but children do not appear to conform to any strict classification by clinical manifestations. The majority

appear to belong to his somnolent-ophthalmoplegic group, characterized by invasion of the oculomotor system, with lethargy and a moderate but quite atypical degree of fever. His second, or hyperkinetic group, shows sleeplessness, with a moderate degree of delirious excitement, often beginning with marked neuralgic pains, and passing on into somnolence. Lastly is the amyostatic group, which presents the clinical picture of paralysis agitans, *i. e.*, the Parkinson syndrome, with its characteristic posture, mask-features and tremors.

The following table summarizes the result of the examination of sixty-four children, the notes of which are sufficiently full to rank for tabulation. (Where no specific note has been made the condition has been counted as normal.)

It must, of course, be kept in mind in connection with the relative numbers and percentages given, that many of the children were presented to me on account of the prominence of certain symptoms, character changes, etc., so that the figures are to some extent loaded.

—	—	Percentage of morbid changes.
Intelligence reduced . . . 30	Normal or unknown 39	43·4
Disturbed sleep rhythm . . 55	„ „ „ 14	79·7
Marked irritability . . . 49	„ „ „ 20	71·0
Character changes and moral defects 21	„ „ „ 48	30·4
Parkinsonism, tremors, bradykinesis, etc. . . . 30	—	43·4
Perverved habits 32	—	46·3

Present state { Improving or stationary 56 } Total 69.
 { Deteriorating . . . 13 }

It will thus be seen that in 79·7 *per cent.* of the cases, most of which were examined from nine to twelve months after the acute stage of the disease, there was persistent disturbance of the normal sleep rhythm. It is not, however, the sleepiness by day which is the most distressing feature of this disturbance, but the noisy irresponsibility which destroys the rest of the whole household, and in the overcrowded homes from which many of the children come is a tragic curse to the over-burdened parents. “Sings and whistles the whole night.” “Keeps the whole house awake singing and shouting.” “In and out of bed all the time.” “Cries all night, and sleeps all day.” “As it gets dark you can’t do nothing with him—anything for mischief.” “If he makes the others cry, so much the better.” “Goes raving mad at night, absolutely raving—gets out of bed and walks round the room and rubs his

head." "Whispers all night, gets out of bed, claps her hands, and sings till five in the morning. She's very nervous. It's shocking; she hears a pin drop at night." "Chatters to herself like as if she's fair silly." These are some of the verbatim reports by mothers. In other cases the excitement takes the form of impish tricks. One boy used to get up at night and break the crockery, and on one occasion locked his father out of the house till 3 a.m. Another very characteristic feature is the tearing of the bed-linen and clothes: "Tears everything up." "Rips his clothes to pieces." "Tears his shirt to pieces and ties them in knots." This form of destructiveness is noted in nine of my series.

The irritability takes various forms, from a mere quick resentment of criticism to sudden and violent outbursts of temper and spitefulness, which make them a potential menace to the safety of other members of the household; as may be gathered from the following sample-statements: "It isn't safe to leave her; she got a knife to her little brother and said she would cut his heart out." "Awful irritable with the other children." "Sets about his younger brother—he's got such a grip on him, we're afraid of him." "Spiteful to her sisters; she used to be such a nice girl, now she's quite changed." "He's got a vile temper now, and it is more than I can manage." None of the series has at present come before the Children's Court, but in six cases there is a history of thieving.

Again, a considerable number of children, 45 *per cent.* in my series, develop peculiar habits and tics. Nose-picking is perhaps the commonest, but perpetual sniffing, coughing and hacking and spitting are common, together with a peculiar habit of holding the finger to one nostril and blowing down the other. The original cause of some of these habits may perhaps be traced to the salivation and dribbling which is a frequent accompaniment of the disease (one woman stated that she went to bed perfectly normal, but that during the night she found the pillow soaked with saliva. This was the first symptom of her attack). One boy, *æt.* 15, constantly makes all the preliminary noise and movements of a sneeze, which were so disturbing as to necessitate his exclusion from school. This lad, who also keeps up a constant snapping of his fingers, had a considerable insight into his own condition, which is of interest. The sneezing movements he said he could control at will, but that they gave him a comfortable feeling "ever since the tea went down my wrong throat." Concerning the snapping of the fingers he said, "I get shaking my hand purposely. Before I was ill I used to think how nice it would be to snap my fingers at everybody, and now I can't stop." It appears that an increased suggestibility lies

at the bottom of these habits. One boy, æt. 10, with good general intelligence, who still continues after a year to disturb the whole house by singing and whistling, gave as a reason for this a definite feeling of euphoria—"I feel as if I want to walk about in the air, and in the Park; I seem as if I wanted someone to bring something jolly—a gramophone." He does not sleep till morning, and cannot be roused. He commented on his mother's statement: "I got him up at half-past ten this morning, but it was half-past twelve before I could get him to put a boot on," with a remark, "I'm always so sleepy; I can't wake." This drowsiness is probably a true explanation of the difficulty, but the drowsiness may be replaced by a feeling of definite illness which passes off as the morning wears on. In only a small number of cases was there a history of definite hallucinations or delusions. One boy, æt. 9, returned from afternoon school apparently well. During the night he was "delirious," but got up next day and took a little boy into the neighbouring church saying that "there were tons of money, and he would see a ladder from heaven and if he climbed up it he would see Jesus." This may, of course, be mere exaggerated fantasy-building, based upon his recollections of Sunday-school teaching. Another boy, æt. 9, still occasionally believes that he sees his mother, who has been dead for some time. Two showed iteration-compulsions in connection with attempts to say their prayers. One of these, a boy, æt. 15, who also exhibited neurotic and introspective symptoms, stated that he sometimes had to say a hundred paternosters at a time, for, "If I said it wrong I used to have to go on saying them." The other boy, æt. 10, used to find he could not remember the words and sequence, and so continued to repeat his prayers again and again from the beginning.

Twenty-nine children gave evidence of some reduction in intellectual capacity since their illness. It must, however, be remembered that so much absence from school is often entailed either by the onset of Parkinsonism, the diurnal drowsiness or the intractibility in school that too much dependence must not be placed on these figures. In none of the cases examined was any profound reduction evident, and the disorder of behaviour was out of all proportion to the intellectual impairment.

The importance of these psychological disturbances lies in the possibility that they may throw some light upon the relation of the phenomena exhibited as late sequelæ of encephalitis to the mental disorders of adult life.

Von Economo argues that it is this disturbance of the sleep-wake rhythm which is likely to point the way to a proper understanding of the causal relationship of the pathological conditions to the

psychical phenomena and behaviour in encephalitis. The problem of sleeping and waking has, he says, been hitherto held to be physiological rather than psychological. This inversion of the sleep rhythm is not found in any of the acute psychoses, but there are certain interesting parallels between these psychical sequelæ and the Korsakow syndrome.

Though there is a strong superficial resemblance between the more advanced cases of Parkinsonism and the characteristic posturing of dementia præcox, and especially of catatonia, yet the mental state presents a very remarkable contrast, for in encephalitis the patient is usually, if not always, intellectually intact. After describing the complete autistic withdrawal which is found in dementia præcox, von Economo writes :

"Now, however, we come across the same psychical disorders as the sequelæ of a lesion of the central nervous system in patients who are psychically, or rather intellectually intact. On establishing touch with them, we notice with surprise that they are apperceptively and intellectually intact, they comprehend and hear everything, they appreciate the relations of their environment, they notice everything, are well oriented, and their critical judgment has not suffered" (p. 41).

The following notes of a case first seen by me on February 26, 1912, are of considerable interest as showing the development during adolescence of a transient schizophrenic state some years after the occurrence of an illness which had all the characteristic signs that we now recognize as encephalitis lethargica. In fact in my card-index, dated February 26, 1912, it is described as "a very interesting case of moral changes following encephalitis."

A. B—, born March, 1904. On July 18, 1911, after playing in the hot sun, became very excited and flew into a violent passion. On the following day he complained of double vision. Temperature 103.4°. A doctor diagnosed as "sun-stroke." In bed fourteen days. "He was now cross-eyed, and was unable to lift his eyelids, thereby having to look at everything sideways." Says "the pictures appeared in twos." "One week later, on being told he could not accompany me (his mother) to town, flew into a terrible temper, threatening to sit on the window-sill and get another sun-stroke. He was very tempestuous and occasionally would knock all the ornaments off the mantel-shelves." "He would, moreover, when in a temper endeavour to get upstairs and threaten to jump through the window." He used very bad language at times, and would suddenly switch off from this and assume an attitude of prayer. He also became addicted to masturbation.

After a year at the seaside and two years' absence from school he returned, and though a very trying pupil, showed very considerable mental ability. He left school at the age of 16, and began a business training, but after six months developed schizophrenic symptoms, showing marked autistic withdrawal and introversion. Says he felt inclinations to suicide. "I lost all interest in my work." His parents say that he was morose, and would spit at them; "at other times he would argue persistently at the slightest thing, and upon setting his mind on anything it was impossible to dissuade him." After eight months, largely spent at the sea, he began to improve, and is now a perfectly normal and healthy young man.

The phenomenon of lack of spontaneity and impulse is only present in a comparatively small number of children, and the

majority show a combination of mental apathy with momentary irritability, and with periods of excitement, together with a rapid onset of fatigue, and a drop in attention. They show a heightened susceptibility to emotional stress, an increased suggestibility, which in some cases gives rise to definite neurotic symptoms. The intellectual impairment seems to arise chiefly to an inhibition of volition and a failure of the exercise of self-criticism (Shrubsall). This failure may perhaps be correlated with the drop in attention, for, as James puts it, "the effort of attention is the essential phenomenon of will."

It is to my mind probable that in the theory of the evolution of the nervous system put forward by Head and Rivers we may find the key to a proper understanding of these volitional defects and the character changes of encephalitis. It will be remembered that these observers, from their clinical experience, and from the results of the experimental division of cutaneous nerves, have concluded that there are two distinct stages in the evolution of the nervous system, *viz.*, the primitive protopathic stage, with its pronounced affective tone and its resulting "all-or-none" reactions, and the later-developed epicritic stage, possessing a much more sharply-defined and localizing character, which enables more complex and discriminative response to stimuli, with corresponding modifications of behaviour. Rivers writes (*): "A character common to emotive reactions and protopathic sensibility in their immediate, and, as it were, unreflective character, the reactions of protopathic sensibility . . . are quite beyond the control which we normally exert over our reasoned movements, while the discriminative and reflective activities of certain forms of behaviour in man resemble in character these epicritic sensibilities with their associated activities." Rivers thus regarded the ordinary healthy mental state as one of equilibrium between the protopathic instinctive tendencies and the epicritic powers whereby they are controlled. His experience of war neuroses led him to see in these a suppression, or a removal, of the control exercised by the more recently developed epicritic capacities over the primitive protopathic characters. Now the child is primarily, and essentially, an individualist, or to use Lloyd Morgan's phrase, "a self of enjoyment," and it is only as he grows that the ceaseless stream of suggestions of social import raises in him a predisposition towards conduct, which is in conformity with the inhibitions and sanctions of the community in which he dwells. He only gradually becomes, in Aristotle's phrase, a "social animal" (⁵), and learns to subordinate or suppress his individual wishes and desires in conformity with the demands of his group.

This development of the gregarious life with all it connotes, and the altruistic attitude towards the other members of the group which it compels, is essentially an epicritic process. This two-stage evolution of the social life may be synthesized with our knowledge of the growth of the neopallium, upon which Head remarks: "In the light of this development of the neopallium, it may be stated that the aim of human evolution is the domination of feeling and instinct by discriminative mental activities." It may be remarked that in *post-mortem* examinations of fatal cases of encephalitis, although the cortex shows the least intense pathological changes, the grey matter of the brain as a whole is involved, while the basal ganglia and the mid-brain are the chief sufferers.

Now, experience in juvenile delinquency teaches that in many of the cases the basic causal factor is a regression to an earlier period of childhood, whereby a mental conflict is solved. There is, in other words, a suppression of epicritic control. It would therefore appear reasonable to suppose that the lesions in encephalitis, whatever their precise histological character, lead to a reduction of this epicritic control, which may be compared with the geological process of denudation whereby the younger sedimentary rocks are removed by the action of the various physical agents, leaving bare the ancient primitive rocks upon which they have been deposited. The tendency to an obliteration of the distinction between "*meum*" and "*tuum*," the all-or-none type of irritability, the complete disregard of the interests of others, manifested in the nocturnal orgies of singing and shouting, together with the failure of self-criticism, seem characteristic of a protopathic condition. Some confirmation of this view is supplied by the experiments on the effects of alcohol on emotivity, which go to prove that "in addition to an all-round raising of the threshold of emotional response, the effect of alcohol is to cause a regression to a more primitive, all-or-none or protopathic type of reaction" ⁽⁶⁾.

One fact in favour of this view is that the previous histories of some of the children who have shown moral changes reveal the fact that they have been "spoilt" or have previously shown some predisposition towards peccadilloes. In fact, in these, but by no means in all cases, their present condition appears to be little more than an exaggerated manifestation of a previous tendency. Any • cause tending towards a reduction of volitional inhibition will naturally, in such cases, produce an increase in the general unmanageableness. It is clear that in the overcrowded conditions under which many of these children live, together with the general turmoil in the home and lack of quiet, the emotional stress is greatly intensified. That these children should, under such

circumstances, show increased uncontrollability cannot be a cause for surprise.

If these behaviour changes which supervene upon an attack of encephalitis are explicable as regressions, they then appear to fall into line with similar phenomena which have been observed to follow attacks of other acute infectious disease and disease of or injury to the brain (*cp.* Still, *Goulstonian Lectures*, 1902), as well as with the anti-social conduct which is so frequently noted as the result of juvenile conflicts and mal-adjustments.

In conclusion, a few words may be said on the subject of treatment. It is clear that, if the theory outlined above is correct, punishment can have little or no deterrent effect, but on the other hand may have disastrous results by the fixation of an anti-social attitude through the creation of a conflict or an inferiority-complex. In one week recently I saw three boys who had suffered from encephalitis charged with offences, one of whom had been committed to a Borstal institution, another to a reformatory, and a third to an industrial school for the feeble-minded. In none of these boys was there evidence of any marked intellectual deficiency. Under the more simple and regulated life of a special institution these, and all their fellow-sufferers from encephalitis, would, in all probability, re-acquire the necessary epicritic control and social outlook which is essential for ordinary life, without the stigma which magisterial action has put upon them. Institutions for their reception are one of the most urgent needs at the present time.

(²) Von C. v. Economo, *Encephalitis Lethargica*, pp. 42, no date.—(³) Diefendorf, *Neurographs*—Huntingdon Number, May, 1908.—(⁴) *Instinct and the Unconscious*, p. 48.—(⁵) *Politics*, I, 2: ἀνθρώπος φύσει πολιτικὸν ζῷον.—(⁶) W. Whately Smith, *The Measurement of Emotion*, p. 138.

The Incidence of Chronic Infective Processes in Mental Disorder.⁽¹⁾

By T. C. GRAVES, B.Sc., M.D., B.S.Lond., F.R.C.S., Medical Superintendent of Rubery Hill and Hollymoor Mental Hospitals, Birmingham.

[With lantern demonstration and photographs, etc.]

THE study of chronic septic or latent infection has in general medicine and surgery advanced to such an extent that it is here only possible to deal with a moiety of the subject, and I consequently propose to deal principally with the chronic sepsis met with in the head and female genital tract, my object being to demonstrate and discuss a few of the clinical types met with in those parts of the body.

(¹) A paper read at the Annual Meeting held at Birmingham, July 9, 1925.

If these septic infections exist, then the question arises as to their relationships with the mental condition of the patient. Then comes a study as to how long these processes have been in existence, and whether other factors have also been operating. Often the conditions found are beyond the possibility of cure; only amelioration can be expected, and in a large majority not even that. They are as a rule insidious and hidden, and only at times associated with local pain. In the majority of cases even this symptom is absent.

THE JAWS.

The tissues involved in septic processes are the gum, the muco-periosteum, teeth, bone—principally cancellous—blood-vessels, lymphatics, and the branches of the fifth nerve.

Apart from local destruction there are remote effects produced by swallowing and the absorption *viâ* the blood and lymph-channels of bacteria, their toxins and the breakdown products of diseased tissues causing general toxæmia. The local ulceration results in nerve irritation.

General toxæmia and nerve irritation are practically always present to a greater or lesser extent together, and usually by the time the patient is certifiable they are well advanced.

The general effects and bodily diseases caused by toxæmia originating in the jaws are too many to discuss now, but they are described in the now expanding literature on the subject, notably in the lectures given under the auspices of the Dental Board of the United Kingdom.(1)

The results of irritation of the fifth nerve are wide-spread, and are responsible for referred sensory disturbances and reflex motor spasms in the head, neck and upper limb.

These abnormalities may begin in one area and gradually extend with the process originating them. They may be due to diseased conditions affecting the teeth, *e.g.*, unerupted, carious, buried or exposed roots of teeth associated with perhaps little involvement of other tissues, or, on the other hand, there may be considerable involvement of deeper tissues, even disease of the jaw-bone—a chronic osteomyelitis.

In the female these motor and sensory disturbances are generally intensified during catamenia, especially in the pre-menstrual phase.

The sensory disturbances in the toxæmic individual may give rise to distorted views, *e.g.*, "the nurses knock me on the head every night," "the nurse takes my brains away," etc.

The motor spasm of the muscles of mastication and deglutition may result in the feeling of inability to swallow.

The following case is an example of the kind in which nerve irritation resulting from carious teeth led to depression and suicidal impulse.

F. 372.—Married woman, æt. 28. Headaches since 18, absent or diminished during two pregnancies, worse at menstruation, also at mid-intervals. They became more severe twelve months before admission, and in six months had become "terrific." The scalp became tender, then occurred insomnia, anorexia, depression, and she became unduly emotional. She had a feeling she must get away from everybody, gave back to her husband her wedding ring, wrote letters revealing an inordinate feeling of sinfulness and threatened to throw herself out of the window. She stated her brain was "waving," and that there was a "clashing sensation of nerves at the back of her head."

Physically she was pale, but fairly well nourished.

The films show three carious teeth and a deeply buried root. There is no marked bony change indicative of deep infection, except perhaps round the root.

The photographs show the facial aspect on admission. There is narrowing of the left palpebral fissure due to spasm of the orbicularis and a more prominent naso-labial fold, and carious teeth in the left upper jaw. The improved facial aspects next shown are after removal of the teeth and treatment for an endocervicitis and discharge on trial.

Although coming from a good home she nevertheless gained a stone in weight, her colour improved, and at the end of the month's trial reports from doctor, visitor and relatives were satisfactory. This is a simple case where continuous, persistent local irritation undoubtedly played an important part in the reduction of vitality, which paved the way for the mental depression, and except for some swelling of the gum in the vicinity of the carious teeth, there was little evidence of infection of other tissues. The ear, nose and throat showed no evidence of disease.

Difficulties and disappointments arise when in addition to nerve irritation there is added infection, probably existing over years, multiple in its bacteriology, and extending to all the mucosæ of the head, the ear, nose and throat, and penetrating into the jaws.

Deep bony infection—chronic osteomyelitis—of the jaws.—I now show you some films illustrative of this most important extension of infection, a full account of which will be found in Colyer's *Dental Surgery and Pathology*.

Deep infection of the jaws from the surface arises in two ways, *viâ* (1) the gingiva, and (2) the apical foramina of diseased teeth.

Generally, however, by the time toxæmia is advanced the radiographic results indicate the presence of both modes of infection. The first slide (Fig. 1) illustrates the rarefaction around the apex of

a crowned and root-filled tooth, due to *organisms having obtained entrance through the carious tooth before filling and crowning*—a case of mental depression.

The next slide shows two films taken from another patient at about twelve months' interval. Both show around the apex of a small buried root a zone of infected rarefied bone; the root is the same in both films and the other dental elements in the films are about the same size, but the area of rarefaction in the later film is about twice the size of that in the earlier. On the first admission he refused to have any dental interference, but submitted to medical treatment and showed an improvement. On the second admission he consented to have the stumps extracted. These films illustrate the slow progressive destruction of bone which has gone on during the year. The photographs show, I think, a distinct change for the worse in his facial appearance on the second admission as compared with that on his first.

The next slide shows the effect on the jaw-bone of shearing off the crowns of teeth—probably carious at the time—leaving the roots in position and fitting a denture over them, areas of rarefaction of the bone round the apices of the stumps being the result—a case of melancholia.

The next slide (Fig. 2) represents the condition on admission of the upper jaw of another patient. There is deep bony infection causing destruction of the jaw-bone as a sequel of old roots being allowed to remain. This was a case of noisy confusion, and dental clearance was followed by improvement and he was discharged, the muco-periosteum having apparently soundly healed. Later when dentures were being prepared he was found to have developed a purulent abscess on the site of one of the areas shown in the film; this was opened, and made good healing, dentures being satisfactorily fitted at a later date.

In the younger man than the preceding case, the duration of whose infection had probably been shorter, and his tissues not so poisoned, an active leucocytic reaction resulted in acute abscess formation. Drainage occurred when the stumps, which had been acting like corks in a bottle, were removed.

The next slide (Fig. 3) shows the destruction of the alveolar part of the upper jaw by infected stumps and granulation-tissue in a protracted case, and the next shows the same in further detail. This patient had no free hydrochloric acid in the gastric contents at a test-meal.

The following slide shows rarefaction proceeding in the bone at the roots of two carious teeth. This film demonstrates the importance of radiographing teeth before permitting crowning or filling

to be done. The rest of the teeth were healthy. The thyroid was enlarged on the same side as the carious teeth.

These slides have shown the deep bony *infection, which has probably gained access to the jaw-bone by travelling through the apical foramen.*

As a rule, however, gingival changes are generally associated with these deeper changes, the gum in the vicinity being more swollen and congested, and sometimes cyanotic.

I also show you a series of slides (Figs. 4 and 5) illustrating the changes which occur in the jaw in advanced pyorrhœa—*infection viâ the gingival margin.* All show—some early, some advanced—the erosion of bone around the apices of the teeth by granulation-tissue as compared with the normal (Fig. 6).

It may be objected, however, that the disappearance of bone is confined to the interdental bony papillæ and alveolar walls, and that when the tooth is removed these will be absorbed in any case.

The point I wish to emphasize is that the granulations which cause the bony destruction are infected and constitute a focus of deep infection, drainage being closed by tough swollen muco-periosteum and a tooth or stump. Hence the products of septic activity—toxins, possibly living bacteria and digested tissues have no channel of escape from the focus. The tooth acts as a plunger, and injects this poisonous matter into the lymph-space under the muco-periosteum.

The neighbouring tissues are poisoned by the process and the periodontal membrane of the next tooth becomes infected. The

DESCRIPTION OF PLATE I.

To illustrate article by Dr. T. C. GRAVES.

- FIG. 1.—Well-defined area of rarefaction round apex of root-filled and crowned tooth. Area is well defined on account of condensation layer of bone at its periphery.
- FIG. 2.—Upper jaw. Stumps with area of rarefaction. On side marked left a root, at its apex a large area of rarefaction.
- FIG. 3.—Upper jaw showing septa of antrum below; above the bone is being eaten away by granulations around roots of teeth. The arrow points to a pear-shaped area of rarefaction which has grown from the apex of a deeply-buried root.
- FIG. 4.—Later stage of bony destruction; much bony rarefaction, localized to one tooth; a case of depression. Lower incisors.
- FIG. 5.—Similar process. Arrow points to an area of sclerosis. A case of exaltation. Lower incisors.
- FIG. 6.—Lower incisors. Fairly normal; interdental papillæ well defined. From a youth.
- FIG. 7.—Upper jaw. Central incisor completely isolated from bone by infected granulation-tissue, which has eaten deeply into the bone, causing more loss of bone on that side than there is on the other side, where the jaw-bone is edentulous. The anterior ends of the antra can be seen. On the same side as the tooth the antrum is more dense, indicating an inflammatory process. On puncture the antrum was full of fœtid flocculent pus.

PLATE I.

LEFT



FIG. 1.

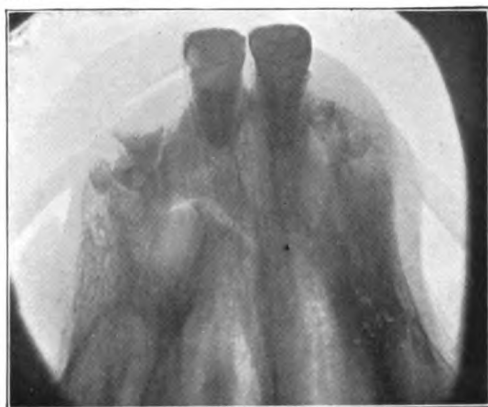


FIG. 2.

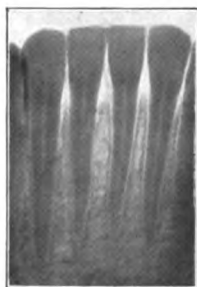


FIG. 6.

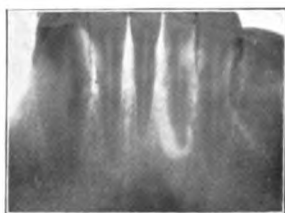


FIG. 4.

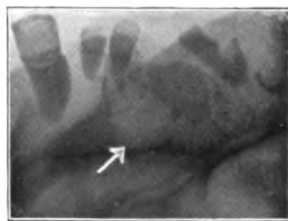


FIG. 3.

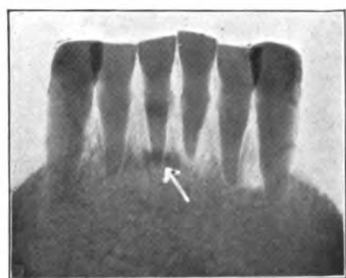


FIG. 5.



↑
Antrum.

FIG. 7.

↑
Antrum.

To illustrate article by Dr. T. C. GRAVES.

extraction of the teeth is only part of the treatment—the infected tissue is left behind and has to be dealt with.

To illustrate the possibility of the actual destruction of bone far beyond the alveolar walls and that such destruction can be effected by infected granulation-tissue the next slide is submitted (Fig. 7).

These chronic septic processes cause a chronic osteomyelitis spreading under the muco-periosteum and forming deep hidden foci of septic infection which persists in the jaws after dental extraction, and it is for this reason that every case should receive careful consideration before the application of dentures. I have met two cases in which the application of dentures was followed by certification and early death in one case, and another case in which confusional attacks reappeared after the application of dentures, but ceased on their withdrawal. Dentures, unless carefully used, can do much harm by causing fresh infections.

One film (Fig. 7) shows a further point. On the same side of the jaw as that in which this slow infective process is going on there is to be seen evidence of an infected antrum with thickened walls, and the nasal air-passage is reduced as compared with the opposite side, where the antral walls are better defined. Nasal polypi were present. The antrum on wash-out was found to contain foetid flocculent pus, part of a sinusitis and ethmoiditis, and it is not unlikely that the mode of infection was from the infected tissues around the apex of the solitary tooth.

It may be objected, however, that these septic processes and lesions occur in the sane as well as the insane, and therefore these conditions might, in any one case, have nothing to do with insanity. That criticism, I submit, is not a pathological criticism. The term "insanity" is a legal and social line drawn across the path of the study of pathological processes which arise from the interaction of seed and soil, of infection and host.

Elsewhere (2) an endeavour has been made to show the existence and parallelism of emotional and intellectual disturbances associated with oral sepsis in three series of cases: The first, seriously emotionally disturbed, but under treatment avoided certification, the emotional disturbance settling down following treatment of the oral sepsis. The second series supposedly sane, but requiring to be certified because surgical interference had suddenly increased the toxæmic load. The third series, certified cases suffering with oral sepsis whose mental condition had improved after local treatment.

It may be reasonable to assert that those in the second group were unstable before the exacerbation occurred as a result of the surgical interference, yet even in this group it must be admitted

that they had had previously the interference of a continuous drain on their resistance by the toxic process.

However, with regard to those in the first group it would not be fair to assert a mental instability, for they showed a substantial recovery from their emotional disturbance.

I have also endeavoured to press the point of the failure of local resistance. In the outer world there are many people who suffer from septic foci, yet apparently there is nothing seriously the matter with them. They are putting up a resistance to their infection—their mobile defences are tolerably adequate. A constant stream of pus is washing organisms out and keeping them out from interior tissues, and so general absorption does not take place or is lessened by the drainage.

Here is such a case. Her jaw films show a serious state of affairs for a young and sane girl—acute periodontitis (with periapical shadows), and caries affecting many of her teeth. What will be the state of her health twenty years hence if left untreated? At the present moment she is reacting to her periodontal infection, as the photograph shows. As a matter of fact, in addition to the teeth she suffers from throat and ear infections, very commonly associated, and which make treatment difficult. As time goes on, if left untreated, her local tissues will lose the power of reacting, other organisms will gain entrance, a mixed infection will ensue with increased toxæmia. *When the local reaction lessens, the general toxæmic reaction will become more profound.* Although not insane she has certainly improved mentally following removal of some of the worst elements—she is brighter and more alert.

No two cases are exactly alike; soil and seed are both variables. The product of their interaction will, to a large extent, depend upon the resistance of the host, and, on the other hand, upon the duration, intensity and extent of the spread of the toxic process. The duration of the toxic process may have been since intra-uterine life, the foetus sharing the mother's poisons as well as her nutrition. The intensity depends on the infection, whether pure or mixed, and the extent of the spread into the other tissues, setting up fresh foci which in their turn may become multiple infections. I now submit evidence of the further spread into the ear, nose, and throat.

THE ACCESSORY SINUSES OF THE NOSE, ETHMOIDS, ETC.

Just as with oral sepsis, so infection of the nasal sinuses has been met with associated with several varieties of psychotic disturbance. Generally confusion and depression are the two basal symptoms, with which there may be associated excitement. The two processes

involved are nerve irritation and absorption of toxic matter from swallowing large quantities of toxic material, and by its absorption directly into the blood- and lymph-stream. In this connection, Mr. A. L. Yates (3) has shown by injecting 15 c.c. of 0.4 *per cent.* indigo-carmin into antra where marked stasis due to damaged ciliated epithelium was present that the dye appeared in the urine in three-quarters of an hour, as compared with a similar quantity of the dye which, swallowed on a subsequent visit, did not appear in the urine. The two modes of infection are (1) extension from a jaw infection, and (2) as part of a nasal infection, *e.g.*, influenza.

Considering the septic state of the mouths of most of the cases in which sinusitis has been found here, I regard the jaw mode of infection as the more common.

Mr. Watson-Williams, of Bristol, has recently drawn attention to the presence of mental symptoms in cases of sinusitis. He writes me as follows: "We have regarded some mental impairment, often hardly noticed by the patient until he is cross-examined about it, as so characteristic of latent sinus disease that we always make special inquiry, such as 'Is there any loss of power of concentration?' or, what I have found particularly valuable, 'Is work which was formerly a pleasure, or at least easy, now becoming a drudgery?' Of course these are leading questions, but it is not possible to get at the facts without them. The patients have so often in the course of years gradually modified their activities, imperceptibly becoming semi-invalids, and do not connect as a rule a 'chronic catarrh' with their lassitude, mental or physical."

Mr. W. J. Harrison records similar symptoms in association with chronic nasal sinus inflammation (4). Mr. T. B. Jobson informs me he has had several cases of sinus toxæmia where a very prominent feature has been a feeling of depression relieved by treatment (5).

In a case published by Mr. Watson-Williams (6) bilateral antral sinusitis due to *staphylococcus aureus* had the following symptoms: "Dulling of intelligence, 'queer' manner, failing memory, depression, contraction of the visual fields and sciatica. These conditions improved following endo-nasal operation and drainage, enabling the patient to do a full day's work without difficulty. At one time it seemed that his destination would be an asylum, or perhaps prison." From the report on the case it appears to have been due to a pure staphylococcal infection, and the mental symptoms were those of depression and apathy. Generally the antral infection is part of a pan-sinusitis involving the frontal, ethmoidal and sphenoidal sinuses, and, if of old standing, there may be nasal polypi indicative of a deep infection of bone. Middle-ear disease may also be present. The ethmoidal complication is the most difficult to treat.

Bacteriologically the infection may be mixed. It is possible to have a pure infection in one sinus and a mixed in another. Several varieties of organisms have been found in these cases, *e.g.*, *staphylococcus aureus* and *albus*, streptococci, *B. coli*, *B. pyocyaneus*, pneumobacillus, *B. cloacæ* and diphtheroids. The streptococcal and mixed types are the most intractable and deadly.

This raises the point as to how far, apart from nerve irritation effects, different types of organisms may be responsible for different types of emotional reactions.

The difficulty, however, is to determine the primary infection, for changes in the bacterial content have probably taken place before treatment is reached, and it may be that degenerative changes of a wide-spread character have ensued elsewhere, *e.g.*, rheumatoid arthritis.

The general toxæmic state diminishes the capacity to discriminate, and the disturbed sensation of smell arising from the local lesion is responsible for ideas of poisoning, gassing, etc., for the offensive smell of sinus infection, unlike that of atrophic rhinitis, is nearly always experienced subjectively. As one old patient with this condition and a nose full of polypi described it: "They always keep emptying the privies near me."

Apart from the expression of such and similar ideas, a hint as to the existence of these conditions may be given by neuralgia, unilateral headaches, carriage of the head, slight swelling of the cheek, distorting the naso-labial fold or palpebral fissure, and tenderness on deep pressure over the affected sinus.

DESCRIPTION OF PLATE II.

To illustrate article by Dr. T. C. GRAVES.

Maxillary antra. The left antrum is fairly well defined, but on the right side the corresponding area is very dense.

Ethmoidal masses. A roughly oval patch of light can be seen above the maxillary antrum on the left side. On the right side this area is dull and ill-defined.

Frontal sinuses. On left side frontal sinus is well defined and its septa can be traced. On the right side it is larger and its septa are not so well defined.

Orbital plates. They can be seen as lines separating the frontal sinuses from the orbits. On the right side this line is more dense and at a lower level than on the left side, due to distension of the frontal sinus pushing it down and the eyeball downwards and outwards.

DESCRIPTION OF PLATE III.

To illustrate article by Dr. T. C. GRAVES.

Light comes through the left antrum better than through the right. Similarly condensation (poor light penetration) of the ethmoidal mass is seen on the right side as compared with the left. The right frontal sinus is more condensed than the left. All are indicative of deep bony infection of the walls of the right sinuses and ethmoidal mass.

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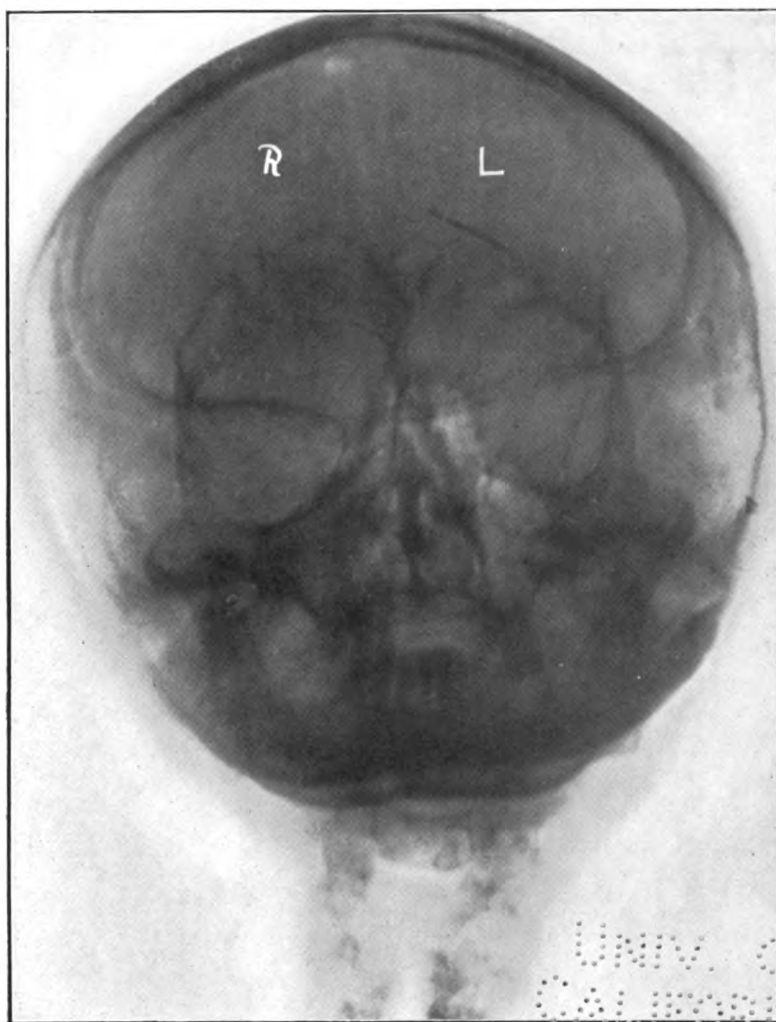
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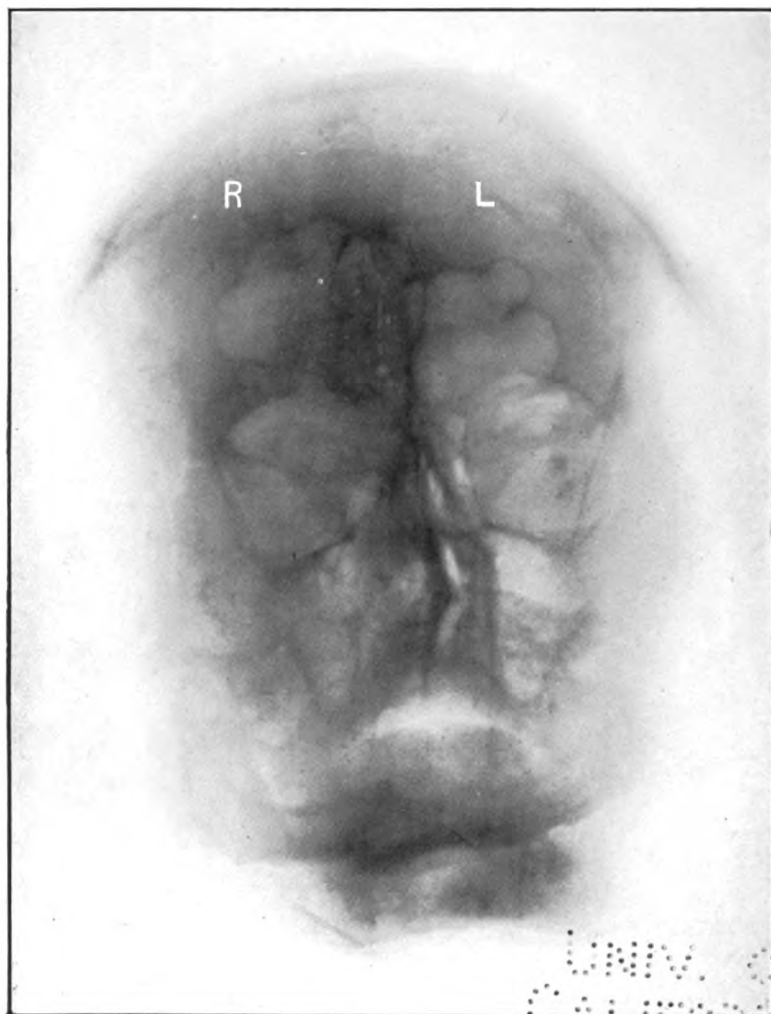
PLATE II.



To illustrate article by Dr. T. C. GRAVES.

10. 11. 1911.
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PLATE III.



To illustrate article by Dr. T. C. GRAVES.

THE
ALPHABET

To demonstrate the damage which sinus infection of a slowly progressive character can produce the following case is submitted :

Female, æt. 66, depressed, deluded, irritable, fault-finding ; said she was Lord Kitchener's daughter, later stated she was his wife, that he used to send her messages, he visited her as a doctor and not in his own name, that she was very wealthy, etc.

Radiogram of the skull (Plate II) shows a chronic pan-sinusitis and ethmoiditis of the right side ; the nasal passage is blocked by polypi, the whole right jaw-bone is more dense than the left, the ethmoids are involved, the right frontal sinus is much dilated, its septa have largely disappeared, the orbital plate of the frontal is depressed, and the line of the orbital plate of the ethmoid is not visible as compared with its fellow on the left.

The effect of this on the facial appearance is seen in the photographs. The eyeball on the affected side is pushed downwards and somewhat outwards, a mucocoele appearance being presented in the upper nasal canthus region, the nasolabial folds are unequal and the right eyebrow is more depressed than the left. Another photograph shows the swollen feet and distortion of the joints of the hands and feet. A radiogram demonstrates the condition of the hands, and shows that practically all the epiphyses are rarefied and periostitis is present on some of the diaphyses—advanced rheumatoid arthritis.

Here we have local damage and general toxæmia arising from a chronic sinusitis which had been going on quietly for years. The case is unapproachable as regards local treatment. Another radiogram (Plate III) from a case of depression, persecutory ideation, homicidal and suicidal, shows evidence of chronic sinusitis of the antrum. Associated therewith was oral sepsis, buried stumps, broken and carious teeth. Facial twitching was much in evidence. The next radiogram shows a similar state of affairs in another case of depression and suicidal intent. Organisms in the pus were staphylococci and streptococci. In his throat he harboured *streptococcus pyogenes* and *streptococcus ignavus*. A radiogram shows the improvement in the illumination of the antrum following surgical treatment.

The next radiogram is taken from a case of acute confusion with destructiveness.

Female, single, æt. 43 ; first attack. Violent, chattered incoherently, shrieked, did not give sensible answers to questions, but made some rambling reply in religious phraseology. Had bruised herself by making signs supposed to be religious, had struck her mother and aunt, and imagined the drawing-room was a chapel and that the Lord Almighty wanted her there.

Later said she was recently married, thought she was on her honeymoon and was about to return home. When she emerged from this state of excited confusion and was able to talk with some degree of coherence one elicited the fact of neuralgic pain over the head. Further inquiry revealed tenderness to a camel-hair brush over the facial distribution of the right ophthalmic and superior maxillary branches around the orbit. Transillumination gave dullness over the right antrum and frontal sinus. Radiogram showed increased density, indicating a bony and membranous change in the walls of the right antrum and condensation in the right ethmoidal mass. Three years before admission she had had a dental clearance for pyorrhœa, having suffered pains all over the head, marked in the occipital region. Following extraction the pain passed from the occipital region to become more localized over the frontal, parietal and vertical regions, and worse on the right side.

The interpretation I put on this is that infection remaining in the jaws after healing of the muco-periosteum reasserted itself in the antrum, causing referred pain.

The duration of the mental symptoms before admission is given as five days. Without knowing this was on the statement of particulars she stated that during approximately this period there had been increased severity of the pain ; her nose and throat were worse than they had ever been before ; there was a horrible smell and her "whole head felt very bad."

This stage would probably be the dry non-reacting stage with swollen mucosa of the nose and occluded ostium of the antrum. When she came to herself, as she put it, she "had to clear away a lot of filth from her throat"—the reacting muco-pus or purulent stage of the nasal mucosa, with re-opening of the ostium in the hiatus semilunaris. The organisms were *staphylococcus aureus*, *diplococcus crassus*, *streptococcus ignavus* and *streptococcus saprophyticus*.

I conclude, taking into account the radiographic evidence, that this is a case of primary staphylococcal infection with a streptococcal infection superadded, which latter was responsible for the development of acute symptoms.

The next slide shows the thyroid tissue—no acini are seen—from the case of sinusitis and ethmoiditis mentioned in the dental section. The iodine content was negligible, and on section the whole thyroid was almost dead white.

On admission she was a case of continued apathetic amnesic confusion with auditory hallucinations and gave expression to ideas of poisoning, being burned, etc. She had a myxœdematous, pale general appearance, upper lip was swollen somewhat, due to the dental condition. There was a history of hyperthyroid symptoms before admission. Tenderness was present on pressure over the right antrum, the nasolabial fold on that side being a little more puffy than on the left. Blood-count showed : Red cells, 3,400,000 ; white cells, 3,800 ; differential count—polymorphs 72, lymphocytes 22, hyaline 6, numerous platelets.

Basal metabolism—the normal figure being 40—varied on different dates between 21 and 28 as a reaction to thyroid medication and returning to the original figures on cessation of treatment. At times she had pyrexia, although the temperature was only 96·8° on admission. The pus from the antral washout was stinking, indicating the activity of secondary infections.

Bacteriological examination gave *staphylococcus albus* and streptococci—*pyogenes*, *infrequens*, *anginosus* and *non-hæmolyticus* III—and *B. Hofmann*.

Abdomen was distended, no free fluid ; uterus was enlarged, and a macerated three months' fœtus was subsequently found on evacuation. A swab from the uterine cervix gave *B. Hofmann*. The blood was sterile on culture.

Psychotic symptoms had been noted for only two weeks before admission. The condition of the jaw—condensation round the antrum and extensive rarefaction round the tooth point to a state of affairs older than two weeks, the period of duration of symptoms.

She was admitted in March, 1924 ; she survived very well the evacuation of the uterine contents and the nasal operative measures. At times, under antistreptococcal serum and other treatment, appeared as if she would pull through, but death ensued in the March of this year. The ethmoids at autopsy were full of pus.

One concludes that the original infection was staphylococcal and had been carried for some time, the secondary invaders being responsible for the final manifestations. The climatic conditions of March played their part at onset and death.

As a rule these chronic sinusitis cases, representing, as they frequently do, extension from an oral sepsis with deep bony infection, complicated by neuralgia of long duration, middle-ear disease, infected fauces and tonsils and gastric disturbance from the swallowing of pus over a long period are very intractable cases. Following treatment a certain degree of improvement results, but as a rule the associated ethmoidal infection persists, and, with the onset of winter and sunlessness, relapse tends to occur.

The two photographs I show you illustrate the improvement in the facial appearance of a case following treatment of septic roots and carious teeth and the washing out of an infected right antrum.

He had a trace of HCl, too small to estimate, on test-meal. Total acidity was 31.5 c.c. N/10 per 100 c.c.

THE LACHRYMAL APPARATUS.

Extension of infection from the nose may spread to the lacrymal apparatus *via* the nasal duct. I show you a photograph of an elderly woman admitted in a state of confusion exhibiting a purulent dacryocystitis. The infection then had travelled over the face, setting up a septic dermatitis. She has oral sepsis, a dull right antrum, large right nasal polypi pushing the septum over to the left, obstructing the left nasal duct.

Styes on the lid and many allied conditions are often associated with deeper septic infection on the same side.

THE EAR.

Out of 123 cases, mostly direct admissions, examined by Mr. F. D. Marsh, M.C., F.R.C.S., the Visiting Rhinologist, 39 showed varying conditions and degrees of ear disease, chronic suppurative otitis media most frequently, in several cases associated with polypus formation and chronic catarrhal otitis media in varying stages, manifested by retracted or sclerosed drums or chronic adhesive processes involving the bony chain and even the labyrinth. Previous suppurative processes were indicated in a few cases by dry perforations of the drum. In only one case was acute suppurative otitis media seen. The patency of the Eustachian tubes varied in association with these conditions.

In possibly the majority of these cases oral sepsis was also present as well as other foci of infection. Thus, in the case of a young girl, the subject of acute confusion, there were present

pyorrhœa, carious and the septic roots of teeth, acute otitis media and amenorrhœa. Following treatment for these conditions she improved, the menstrual function returned, but with dysmenorrhœa and associated irritability. A polypus was found obstructing the cervical canal; this was removed and the dysmenorrhœa and irritability ceased. She was discharged and is doing well.

In a male case acute destructive excitement occurred with oral sepsis, caries, etc., and chronic suppurative otitis media with a polypus preventing the exit of pus. It was noted that improvement of his mental state was associated with the discharge of pus and a recurrence of his mental symptoms with the cessation of pus discharge—in this resembling antral suppuration.

Treatment of these conditions, securing free discharge of pus from the ear, was followed by cessation of recurrence of excitement enabling discharge on trial, and admission to the Ear, Nose, and Throat Hospital, where a radical mastoid operation was successfully carried out. At operation the mastoid antrum was found to be full of polypi, indicating chronic infection of bone. In this case he had suffered from chronic otitis media since a child, but had of late years neglected treatment, the upshot being uncontrollable excitement.

Some investigations have been made to ascertain the relation of auditory hallucinations to old and recent ear disease. Sometimes the hallucinations are associated with the diseased ear and sometimes with the better ear of the two, but in these latter cases the worse ear may be the one in which the patient is totally deaf. What may pass for, or be thought to be, auditory hallucinations occur, of course, in the absence of obvious ear disease; the individual is, however, often somewhat confused from other toxic causes, and may be the subject of irritative processes elsewhere in the head which are operating through the fifth nerve. Such a case occurred in a male patient with several carious and septic teeth. On improving he stated, and probably truthfully, that he had had intermittent buzzing in the left ear for 18 years before admission. He had no obvious disease of the left ear.

In a confused state the sounds produced by wax may be associated with "voices."

I consider an important factor in the causation of hæmatoma auris is toxæmia of septic origin.

THE TONGUE.

Streptococcal glossitis.—A description of this condition has been given by Dr. Herbert French, who quotes the case of a woman, who "went literally mad with pain and threw herself out of a

window." He regards many cases formerly classified as "neurosis of the tongue" as due to this condition, and *streptococcus pyogenes* is recoverable in nearly every instance. I show on the screen the illustrations which accompany his article (7).

I show you a plaster cast of a portion of the surface of the tongue of a woman who was the subject of persecutory ideation and hallucinations, which shows the superficial fissuring similar to that shown in the illustration of the chronic stage of streptococcal glossitis. Examination of the posterior third of the tongue will often reveal swollen and congested circumvallate papillæ. Sometimes cyanosis is very marked in these structures, similar to that seen in the pillars of the fauces.

THE TONSILS.

In 48 cases out of the 123 the tonsils were found to be diseased; in many of these cases adenoid vegetations were present. Other conditions present were recurrent peritonsillar abscess, recurrent acute follicular tonsillitis, chronic cryptic disease, chronic hypertrophied and infected tonsils, encysted tonsillar abscess.

A very common condition found has been a diffuse œdematous infected tonsil with purplish injected fauces—the chronic rheumatic type. I submit a photograph of the fauces of a case of recurrent depression and some confusion associated with insomnia in the intervals.

The subject, a married woman of middle age, had been under certificate for a short time twenty years before, and now sought admission to the hospital on account of her nervous state. Her drums were retracted, but she had not suffered from hallucinations, although she had experienced a buzzing in the ears. Several years before admission she had been troubled for seven consecutive years with quinsies, which ceased when she became edentulous.

The region is not easy to photograph, but the tonsils and the swollen uvula can be seen. The fauces when at rest are almost blocked by the largest tonsils I have ever seen in a woman of her age. They were infected, and the posterior pillars were red and swollen with œdema.

Another case illustrating tonsillar disease:

Female, single, æt. 31, certified on two previous occasions; admitted on account of depression, vague auditory hallucinations, poor volition, suicidal attempts by poisoning.

Both ears showed evidence of chronic otitis media, an old perforation being present below the malleus on the right side. Right antrum dull and tender. Tonsils were of the chronic hypertrophic follicular type, and descending from the tonsils to the gums of the lower jaw on each side was a red line of injected blood-vessels, which split up into three branches, one passing on to the lingual aspect of the gum, the other on the buccal aspect as far forward as the premolar teeth, and

a third central line which ended in the swollen mucosa at the back of the partly erupted wisdom teeth. Her teeth were good. Local treatment was of no avail and the condition persisted, the interdental papillæ were swollen and their colour a red to purple.

Complete enucleation of the tonsils was performed. The organisms in the tonsils were *Streptococci anginosus*, *ignavus*, *salivarius* and large Gram-positive diplococci.

A test-meal before enucleation of tonsils gave HCl 0.03 *per cent.* and total acidity 36. Three months after operation free HCl was 0.074 *per cent.* and total acidity 55, and four months after operation free HCl was 0.076 *per cent.* and total acidity 56.

Following the tonsillectomy the red lines disappeared, the interdental papillæ became pink, her general physical and mental condition improved and she was discharged.

Another case:

Female, single, æt. 17; admitted in a state of noisy confusion and giving expression to ideas of grandeur—the King was her uncle, the Prince of Wales was her brother, and that she was Lady Mountbatten. Resistive to nursing, she heard and answered voices. She had an enlarged thyroid. Menstruation was irregular, missing every other month. She improved physically on medicine, but became pathologically mischievous and very excited, especially at menstruation. Examination of the throat showed infected and enlarged tonsils, and a large mass of adenoids; the pillars of the fauces were congested. The tonsils and adenoids were removed, the latter a large mass. A photograph taken following this operation shows a more sober facial appearance and a lessened thyroïdal enlargement. The mischievousness ceased, menstruation became regular each month. She was discharged, her weight having increased from 7 st. 6 lb. to 10 st. 7 lb.

The latest report from the Visitor is that menstruation is regular, the goitre has gone down and the patient is looking after the home quite satisfactorily.

I regard the acute symptoms as due to an acute infection of the tonsils and adenoids, and the thyroid enlargement as a toxic or infective thyroiditis.

A propos of the point of improved conduct, Mr. E. Musgrave Woodman, M.S., F.R.C.S., informs me that he has had cases of adolescents with improved conduct following removal of infected tonsils and adenoids.

The next photographs illustrate the improvement in the facial appearance following treatment of oral and tonsillar sepsis.

The first photograph shows a bloated face and neck and some degree of exophthalmos, and the second picture a finer appearance and an absence of the exophthalmos. On admission he was a case of confusion; auditory hallucinations; stated he was God. At times he became stuporose and showed waxy flexibility. He has been doing well since discharge.

THE GENITAL TRACT IN THE FEMALE.

When the figures were last totalled, Mr. A. B. Danby, F.R.C.S. Edin., the visiting gynaecological surgeon, had examined 139 women, 82 parous and 57 nulliparous, in whose cases the existence of gynaecological disturbances had been suspected.

The conditions found can, as far as local infection is concerned, be summarized as follows:

(1) *Acute venereal disease* : No cases. (2) *Chronic venereal disease* : No cases in which the gonococcus has been isolated. In suspicious cases films have proved negative. (3) *Acute non-venereal disease* : a small number of cases have shown acute infection processes, and here treatment has resulted in marked improvement. (4) *Sub-acute and chronic non-venereal disease* : These conditions have been found in 99 or 71 per cent.

This group includes all septic conditions of the cervix such as endocervicitis, endocervicitis with erosions, endocervicitis with ectropion, endocervicitis and polypus, old parturient lacerations. With all these a purulent or muco-purulent discharge has been found. A considerable number of nulliparous women have shown a definite endocervicitis with muco-purulent discharge, and in these cases the gonococcus has not been found.

(5) *Puerperal sepsis* : (a) *Acute fulminating*—here the prognosis has been hopeless, as the patients on admission were in a profoundly septicæmic state, and organisms were isolated from the blood. (b) *Acute and subacute group*—these cases showed evidence of subinvolution with patulous os and free purulent discharge, and react well to treatment as a rule.

In connection with these infective processes, Mr. Beckwith Whitehouse (8) has recently discussed the question as to whether puerperal infection can arise from a septic focus elsewhere in the body by infection of the uterus *via* the blood-stream, and quotes cases to illustrate the relation of puerperal sepsis to chronic maxillary antral infection and chronic otitis media.

He states, "Instances may be mentioned of acute pyelitis supervening upon a suppurating tonsil, chronic pyæmic abscesses occurring in a patient with a suppurating maxillary antrum, or iritis relieved by the extraction of carious teeth with alveolar sepsis. It is not a great step, therefore, to trace the development of uterine sepsis in the placental site of a patient who is the subject of a chronic suppurating focus."

As the majority of these cases showing gynæcological sepsis, with or without evidence of deeper infection such as polypi, have septic foci elsewhere, the question arises as to the relation of these distant foci to endocervicitis, etc. I am inclined to the view that the cause of the deeper infection of the cervix arises from foci elsewhere, and that, as in conditions elsewhere in the body, the secondary infections play their part.

Treatment of the distant focus, however, will not necessarily result in the desired improvement locally or generally until the endocervicitis yields to treatment. This requires team-work.

A case illustrating this may be quoted.

Female, married, æt. 31; continued confusion, disoriented for place and vague as to temporal relationship. Stated her husband was King of Germany, impulsive, excitable, violent; imagined she could hear people talking about her husband. It was noted that conduct was worse during the catamenia.

Foul pyorrhœa, loose, carious teeth. These were removed, but there was some exacerbation of morbid conduct. Her weight increased thereafter.

Gradually became more manageable except during menstruation. Seen by gynecologist, who found endocervicitis, with much muco-purulent discharge, reddened urethra, etc. Treatment was carried out. She continued to be less excitable and at menstruation excitement became not so marked. Vaginitis disappeared and endocervicitis improved. A year after dental extraction she began to show real signs of improvement and the confusion and excitement passed away. Her husband—evidently a student of character—informed me that “after studying her minutely during the whole of the time spent in her company I could find no trace of the old wilfulness that was almost always present. Instead there seems a more restful spirit, more concern for others; the old arrogant style has entirely disappeared.” She was discharged, and although later had a miscarriage—which is not surprising—she pulled through satisfactorily and had no mental relapse.

As indicated at the commencement, I have only covered part of the subject. In many other parts of the body insidious infective processes play their part in the reduction of vitality. Notably in the portal area, disturbance of the hydrochloric acid content of the gastric juice lets through many organisms, whose activities in the bowel are responsible for an increased load of toxins being thrown upon the liver and the endocrine system. Staphylococci, streptococci (the latter sometimes in pure culture), *Bacillus pyocyaneus* and the food-poisoning group of organisms have been found amongst the intestinal flora.

In relation to pernicious anæmia, Dr. A. F. Hurst has advanced the suggestion that there may be a congenital absence of hydrochloric acid, and recommends for treatment large doses, suitably diluted, of that acid, and it is possible that a cause of this character may be operative in some cases of adolescent mental disorder.

In the urine staphylococci and streptococci have been found.

The bearing of these infective processes on the causation and duration of mental disorder is a matter of opinion. That they play some part cannot be denied, and if by treating them some improvement or amelioration ensues, it is clear that the earlier the case is treated the better.

In the *British Medical Journal* for July 4, 1925, pp. 9-12, will be found a series of articles by Bristol workers on this subject.

I have, in conclusion, to acknowledge the assistance that Sir Frederick Mott, Mr. Musgrave Woodman, and all my colleagues on the Visiting and Resident Staff have given me in making the observations which have been embodied in this communication.

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Delinquency.⁽¹⁾ By W. A. POTTS, M.A., M.D., Physician to the Tavistock Clinic, Psychological Expert to the Birmingham Justices.

DELINQUENCY is a big subject, but the time available now is limited, so I shall be able to put only a few facts and a few ideas before you.

First I ought to direct your attention to the Birmingham scheme for dealing with abnormal cases before the courts. This was inaugurated in 1919, thanks to the energy and intuition of Mr. Gerald Beasley. The principle established was that there should be a whole-time medical officer at the prison specially experienced in insanity and mental defect, who could, when called upon by the justices, examine persons remanded in custody, who might be not fully responsible, either through mental defect, or some other mental abnormality. At the same time there should be available a part-time psychological expert to examine similar cases remanded out of custody. This makes expert investigation possible in every case of doubtful responsibility. In the opinion of some a weak point is that the decision as to which cases should be examined rests with the justices. It is a question, however, whether the decision ought to rest with anyone else in the present state of public opinion.

⁽¹⁾ A paper read at the Annual Meeting held at Birmingham on July 9, 1925.

In actual practice the Prison Medical Officer, Dr. Hamblin Smith, has some 200 cases referred to him every year at the prison, while of cases remanded out of custody, only some two dozen are referred to me in a year. However, when the lay mind understands that the only way to prevent delinquency is to examine, not the seasoned offender with previous convictions, but the first offender, particularly the juvenile delinquent, whenever the seriousness of the offence or other special circumstances suggest that treatment, rather than punishment, may be desirable, a larger number of first offenders, and especially cases in the Children's Court, will be examined. The habitual criminal, who is often the greatest anxiety to the authorities, was a first offender once. Besides, the first offender has frequently been going wrong for years, although it is only his first appearance before the court. It is a fact that the habitual criminal usually begins his unfortunate career at an early age—often nine or ten—and can only be dealt with satisfactorily in the initial stages of his career. You will understand, therefore, that the experience that forms the subject of this paper has been gained not so much in the Birmingham Courts as in the course of private practice, and especially through delinquents referred to me from other centres on the strength of my Birmingham appointment. The time will come when all sexual offences, all young persons who have done anything serious, all who have to be sent to a remand home, and all cases who are not understood, will be referred for special examination.

The subject of delinquency can be approached from many angles. The simplest view-point is to see that as stealing is the commonest offence, the root cause is often either inability to earn a living or to earn what is thought to be enough. Inability to earn sufficient is generally due to lack of training or some definite handicap. If it is not merely a living that is wanted, but an addition for luxuries and pleasure, there is a wrong attitude to life. Training or education are required in many cases. But first it is necessary to make sure there is no definite handicap. Handicaps may be divided into two classes—physical and psychological. Excluding insanity, the psychological may be subdivided into inborn and environmental. Often it is not possible to differentiate the two big groups, because many, possibly all, physical disabilities carry with them a sense of inferiority, which may be a big factor in the case. Besides, the fact of a physical disability never means that there may not be a psychological one too. Physical factors must always be excluded first, because physical conditions are easier to diagnose and treat than psychological. Besides, even if there is a psychological factor in addition, it may disappear when the physical factor has been treated.

One of the earliest and most satisfactory cases I treated through the courts in Birmingham was a youth of 18 convicted of stealing. He was suffering from phthisis—a condition which had not been suspected. The Medical Officer of Health kindly arranged for him to go to the best of the city sanatoria: three months' treatment restored him to health. On his return he had the advantage of being able to secure lighter work. Several years have now elapsed, during which his conduct has been good. This was accomplished by placing him on probation, and making necessary treatment a condition of the probation. More than one young offender has been successfully dealt with by probation, the first condition of which was an operation urgently required for adenoids. In America cases of delinquency have been described, which were due to defective vision, and were cured by glasses. Though on the watch for this I have never seen such a case. This is probably due to the excellent school medical service in this country. It does not require much imagination to see that the child with a serious, but untreated, eye defect will not only miss much that others learn, because he cannot see the blackboard, but will be further bowed down by a deep sense of inferiority, through not being able to do what his companions can. The sense of inferiority is an important subconscious factor in many cases of delinquency. It may drive the incompetent ill-developed boy of a better social class to steal such a sum of money as may enable him to buy a gramophone, and so seek to impress his school-fellows.

There is a common form of stealing in which money and articles of value are stolen from the parents, and the parents only. In such cases it is almost certain the parents are depriving the child of something to which it has a right, such as proper arrangements for fresh air, exercise or suitable recreation, or even proper education, or education in some special accomplishment, suited to the child's station in life. Among such unsatisfactory parents we can include well-to-do people, who never give their children any pocket-money, but do not hesitate to spend freely on themselves. In many cases of juvenile delinquency the problem is the parents. The relation of child and parents is a subject for a book rather than a fragment of a paper. I will say no more now than that the parents must be honest in their whole life. Many cases of wrong-doing in children may be not unfairly ascribed to the father habitually sailing as close as he dares to the wind, though he may never have committed any technical offence in his business. Mentioning honesty of the parents reminds me of a boy who stole a cricket-ball at school. His mother said it was impossible, but to her dismay found the ball in his room. She tackled him, and after assuring

him she trusted him absolutely, and putting him on his honour, asked if he had stolen the ball. "Would you believe it," she said, "he told me a lie to my face?" "Of course he would," I said, "as you had told him a lie first." "What lie did I tell him?" I replied that when she told him she trusted him, she trusted him so little that she had the cricket-ball in her pocket as confirmation, if necessary. Children must not be trusted till they are old enough, and have been trained to be trusted. But many parents evade their duties, and when they say they trust their children, it only means that the policy of closing their eyes is the easy course they choose.

You must not deduce from anything I have said, or may say, that I think there is ever one factor, and one factor only. Every case is complex, with many roots, and we must take it as a whole. One factor may overshadow the others, but the whole business is failure to adjust to life. All handicaps must be removed as far as possible, and training given along many lines.

When speaking of looking at delinquency from many angles, I had in mind not only toxæmia, but also the endocrine glands. Some enthusiasts, chiefly Americans, would explain every case in endocrine terms. Even if such an extreme idea were correct, we know how difficult it is sometimes to decide which gland is at fault, and how much more difficult it is to administer the particular hormone, so that it will act. Even the extremist therefore must often fall back on other methods in the meantime. It is unnecessary to say anything about thyroid cases, which are recognizable and amenable to treatment, though even here I would deprecate pinning our faith to one line of treatment only. Equally obvious cases, but far more difficult to treat, are young adolescents of either sex in whom there is hyperpituitarism. They may be exceptionally capable and obviously fitted for married life, except for the fact that they are not experienced enough, or sufficiently trained, to earn sufficient to maintain a home, or in the case of a girl to take her place in every way as a wife. We must also look at delinquency from the social angle. We must have vision broad enough to see that it is intimately interwoven with the housing problem, and with the provision of public parks, and open spaces for games. Joining the Boy Scouts may be the best form of treatment. The Scottish inquiry into juvenile delinquency, among other important findings, ascertained that the greatest amount of juvenile crime was committed on Saturday or Sunday. Such knowledge makes us realize that not every child has yet had a fair chance.

But it is time I was more definite and told you how I suggest the examination of a delinquent should be conducted. First, a thorough

physical examination. Is there disease or disability? If there is nothing definite, is he physically inferior or not?

Then mental defect must be considered. Some extremists, knowing that mental defect is the explanation in some cases, have jumped to the conclusion that all delinquents are more or less defective. This is not the case. It is clear now that even the 10 *per cent.* of defectives found in prison by some of the investigators to the Royal Commission on the Feeble-minded was inaccurate, and that from 2 to 5 *per cent.* is nearer the mark. If not a case of mental defect, is the subject of examination dull and backward? If dull and backward, with physical inferiority as well, he is nearly as badly off as if he were feeble-minded. Indeed a few feeble-minded persons succeed in virtue of their physical strength. In these cases an estimation of the mental age should be made. I never certify a case on the mental age, but independently of it. But the mental age is a useful confirmation, especially as something so concrete may appeal to the legal mind. All cases examined from the Children's Court should be so classified, for it is a great help to the magistrates, especially when they realize that the older child with a mental age of 6, say, will behave like a child of 6, and choose companions of that age. When it is a case of going to an institution the mental age is a useful guide to its managers. Besides, the mental age is a help in prognosis. For instance, if at 16 the mental age is below 9 it is almost certain the individual never can be self-supporting; if the mental age is between 9 and 10 there is a chance; with a mental age above 10 it should be possible to earn a living unless there is a physical or moral defect as well. Further light may be thrown on the possibilities by using one of the numerous form-boards. When a feeble-minded boy does the form-board quickly I seldom advise his being sent to an institution till he has had a thorough trial outside.

Some of you may be surprised that I am not describing the moral imbecile. The reason is that, while not denying the possibility of such a person, I have not yet seen a so-called moral imbecile who was not really a mental defective, unless he happened to be a case of incipient insanity, or a post-encephalitic, or psychological case, amenable to treatment and capable of behaving properly in a satisfactory environment. I have no intention of discussing the question of the moral imbecile now, because the controversial discussion involved might keep us here far too long. All I say is that I have not yet seen one.

Just as mental defect explains a small percentage of delinquency, so does insanity; but it only accounts for a small percentage, not more than $\frac{1}{2}$ *per cent.* of all cases. It must be kept in mind,

and also the fact that dementia præcox is often closely allied to mental defect, and sometimes difficult to distinguish. At the present time there is a further difficulty, owing to the not infrequent sequelæ of encephalitis lethargica that come along.

Finally, you will have gathered that we must consider whether the case is a psychological one. In spite of the objections that may be raised by many respected authorities, I would say the time has come when we must recognize a mental conflict as a definite clinical entity, to be diagnosed and treated as such. If you ask me what is the proportion of cases of mental conflict I can only say I have no idea. Every delinquent I have seen, unless he was insane or mentally defective or physically ill, has been, to some extent, a psychological case; but I only see a very small proportion of all offenders. An extensive investigation to ascertain the proportion is badly wanted. The mental conflict may be a father or a mother complex, or it may be a "Peter Pan" case, or one of many other common types, including an unsuitable or uncongenial occupation. But I must say again there is seldom only one difficulty; the delinquent usually fails along more than one line, and requires corresponding help. One or two cases may be of interest. A few have been dealt with by a thorough analysis, but for many, psychological talks were all that was required. In the case of young persons under eighteen I never do a regular psychological analysis, and always reduce the interviews to the minimum, both as to their duration and number. A little girl of twelve, who stole pennies from the pockets in the cloak-room at school, was clearly a Mary Rose. Some of you may accept that the subconscious motive was the idea that if I steal pennies, although I can get as much pocket-money as I like, you cannot say I am growing up into a responsible girl, who must be prepared to face the difficulties of life. To the heretics I can only say that a few psychological talks over a period of three months, without any endocrine treatment or elimination of toxins, resulted in a different type of girl. Her teachers noticed that she worked better, extended her interests, and developed in many ways, in addition to behaving well. She never had any dreams, but she wrote some original fairy stories, which we analysed together, while I helped her to understand her father, an able and sensible man to whom she was devoted.

Just as I warned you that we must never fix on one factor only, so I would deprecate the idea that in any but the rarest instances one interview is all that is required. With that warning I would refer to a young woman of 21, a cashier, who had embezzled £17. It was not the first offence, as she had embezzled £10 before. The case never came into court, as on both occasions the money was

refunded by a lady friend before the deficiency was discovered. She came a long journey, and the expense and conditions of her work made it impossible for her to come back for treatment. It seemed therefore hopeless, but when I realized that she was a particularly intelligent young woman of a good disposition, while I could have the further advantage of an interview with her mother, who was also a sensible woman, I determined to do all I could to make a success of the single interview—a very long one. When I asked her why she stole the money, she said she took it to spend on herself, and the explanation was that she was much too fond of silk stockings and chocolates. It appeared, however, that while she bought expensive boxes of chocolates, she never ate more than one or two herself, but gave the box away to her younger brothers and sisters. I told her the reason was inadequate, and that we must go more deeply into her life. Then I spoke to her about her mother; at first she was indignant at the idea of discussing her mother, who was, she said, a wonderful woman, who had done everything possible for the family. But gradually I drew her out. She was the eldest of a superior working-class family, whose income, however, had often been limited. Her mother was one of the devoted self-sacrificing type, who did everything for the children, and never made them do their own mending or any work she could undertake herself. Brought up in such an atmosphere, the girl, although clever at school and also at her work as a cashier in a business, all the wages of which passed through her hands, still remained in many ways undeveloped. Gradually I got her to see that her mother was her difficulty, and that so far from making a mistake in leaving home and going into lodgings near her work, she had taken a wise step, and must not think of going home again, as she had been recommended to do. The mother was as sensible as the daughter; indeed she had already partly realized that she had spoilt the child, and was largely responsible for the offence. The girl had no other treatment. She wrote to me eighteen months later to say she had repaid all the money, had had no further difficulties, but had passed a special examination qualifying her for a better post. The only trouble was that the new post was far away from her home, and she wanted to make sure I approved of her going so far. As a reminder that there is always more than one factor in a case, I should say that this girl was very proud of her book-keeping and the beautiful way in which she kept her accounts. But the manager of the works trusted her, and never looked at her books. All of us, especially if we are young, like, indeed possibly require, commendation for good work; while no young person should ever have sole control of large sums of money.

Some cases can be understood best through their psychological type ; for instance, many of a feeling or emotional type must learn to reason and think more, and to make themselves harder and less sensitive. A young man of good family, who had served two long sentences of imprisonment, was of this type, which was an additional difficulty to that arising from the Puritanical atmosphere in which he had been reared. Whenever anything went wrong his impulse was to run away, which he usually did in a stolen motor. If he had any money he abandoned the car, after travelling a good distance ; if he had no money he sold it. One of my aims was to make him, when impelled to dash off, stop, and think, if he did so, where would he be in ten hours, ten days and ten weeks respectively. This was a great help. It was a very complicated case, but he is now earning his living, and for the last two years there has been no misconduct.

The great difficulty in many cases is a craving for adventure, or an intense and reasonable desire for something they cannot get ; artistic ability, love of music and the beautiful must be given some form of expression. But there is not time now to describe cases of this kind. Just a few words about two special offences. First, homosexual offenders, if not mentally defective, are psychological cases ; their development is retarded, especially on the emotional side ; they respond well to treatment by analysis, but it is essential that it should extend over a sufficient length of time.

Secondly, cases of chronic alcoholism require serious consideration. I believe the possibilities of treatment in some cases are much greater than is generally realized, and that there are many lines of treatment not yet explored. The tragedy of some of these cases is that they are not only charming personalities, but very capable. The question of toxæmia must first be considered. Many are, I think, hypothyroid, and this perhaps explains the fact that some drinkers from the beginning can take enormous quantities of strong liquor without showing any of the ordinary effects of intoxication. Then I saw a brief account once of a system tried successfully in America of getting drink cases to work with and help one another. The essential condition was that they should join a club, the President of which, and all the officers, were reformed drunkards. In this connection I would tell you of a young man who used to soak himself with beer every day, but who has been treated so far (seven months) with success in that he has abstained and has had promotion in his business. He was sent first to a special sanatorium. He told me that when he arrived there it was the greatest encouragement to find that the other inmates were not degenerate imbeciles, but very decent fellows. In all cases of daily drinking there must be physical treatment and some control in the first instance, but when the habit

has been temporarily stopped, and in cases where there are only periodic bouts, psychological analysis is invaluable. Experience has taught me, however, that in the case of some married people such treatment may be useless unless the married partner collaborates in the analysis. I need hardly say that alcoholism due to mental defect cannot be treated in this way. Apart, too, from mental defect I must warn you that many cases of mental conflict are not suitable for analysis. Many are hopeless, at any rate at the advanced stage at which we first see them. Besides, Sir Frederick Mott has rightly impressed on us the importance of estimating the inborn potentialities. It is less necessary to warn such an audience as this that cases requiring analysis should only be taken by those who have themselves been analysed. It is a fact that no one can take anyone else further in analysis than they have gone themselves; an attempt to do so involves great strain, and often ends unsatisfactorily. Psychological analysis is sometimes condemned because of the failures of untrained workers. It is as unfair to do this as it would be to judge surgery by the performance of practitioners who had never been surgical dressers, far less house-surgeons. But those treated must have possibilities in themselves.

As a final word I would say that though no one could attach more importance than I do to the pathological and bacteriological laboratory, and to the value of suitable drugs and endocrine preparations, yet, if we want to understand delinquency and other forms of abnormal conduct, much of our time must be spent, not in the laboratory that deals with death and disease, but in the consulting room, where there is an investigation into life and the mainsprings of action.

The Psychopathic Personality.⁽¹⁾ By M. HAMBLIN SMITH, M.A.,
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I PROPOSE to deal briefly in this paper with a group of cases which is a large one, although ill-defined. The group is of much social and medico-legal importance, and its consideration raises questions of fundamental moment. As generally described, the group is heterogeneous. But I shall try to show that the conditions comprised in it are related to each other, as also to other kinds of mental abnormality. The members of the group are characterized by their inability to make satisfactory social adjustments. But I

(¹) A paper read at the Annual Meeting held at Birmingham, July 10, 1925.

must not be taken as meaning that all social maladjustment is due to this cause.

Various names have been given to the cases comprised in this group. They have been described by German writers as "psychopathic inferiors," by Adolph Meyer (1) under the title of "psychic constitutional inferiors," and by other American authorities as the victims of "constitutional psychopathic states." The latter authorities have introduced a more or less official classification of the group, an attempt of which I shall speak presently. The group has also been discussed under the name of "psychopathic personalities"—a name which I have tentatively adopted for the title of this paper. There are objections to all these names, which are simply attempts to create pigeon-holes for the accommodation of cases. And the name of "psychopathic personality" is, perhaps, the most objectionable of all. For the mind, as I conceive it, is the personality. The mind is not something which *has* psychical experience; it *is* psychical experience. Psychical experience, largely, of course, the result of apperception of the environment, is organized into mind, and forms personality (2). The name "constitutional inferiority" is also open to grave objection. For the expression has a strong connotation of physical defect; our forefathers were wont to speak vaguely of a "weak constitution," veiling their ignorance by words which darken counsel. The supposed connection between these psychological states and bodily disorders is of the utmost practical moment. William Healy (3), following Ziehen (4), states that in the greater number of these cases distinct bodily abnormalities are to be found. And he would limit the diagnosis to those cases which show signs of physical as well as mental inferiority. Now, is this limitation justified? Is there such a preponderance of physical defects to be found in this class of patients? It may be true that physical defects are often found. But I should not be prepared to assert that such physical defects are more frequently found in these cases than in persons whom none would think of placing in this group. And there is a still more important point. To lay stress upon physical defects is to suggest to others, and to make a strong self-suggestion, that the physical abnormalities are the *cause* of these and of other psychical conditions. Perhaps I need hardly say that this view is one which I am not disposed to adopt. We may say, if we please, that certain psychical conditions are sometimes associated with certain cerebral and other physical abnormalities; but this is not to say that the latter conditions are the cause of the former. The necessary training of our profession upon anatomical and physiological lines seems to me to have grave drawbacks as regards psychological medicine.

For it gives us a tendency to content ourselves with the consideration of the physical ills of our patients and to neglect that which is psychical. Treatment of the physical condition has, of course, its value. Even in the case of a patient suffering from some grave physical ailment we treat minor and concurrent physical ills. But in this latter case we do not forget the main physical ill, with which we are primarily concerned. In the field of psychiatry we do perhaps tend to overlook the main condition, or are, at least, inclined to think that we can do no more when we have dealt with the concurrent physical factors. Actually, the defective physical condition is simply one evil factor in the environment with which the mind has to deal. But I shall return to this question later.

To revert to those who have been classified as psychopathic personalities. Healy (5) describes the general characteristic of these cases as abnormal reaction to some of the ordinary stimuli of life. Such abnormal reactions are almost universal in these persons. They are, he says, "egocentric, selfish, irritable, very suggestible, easily fatigued mentally, and are sometimes possessed by an abnormal feeling of impotence." (I presume that by this latter term he is meaning general psychical impotence, and not merely reproductive impotence.) In other words, these cases are the victims of a strong inferiority complex. I would refer to the cases of Richard Loeb and Nathan Leopold (6), both of whom were classed, by some who examined them, as psychopathic personalities, and both of whom had marked inferiority complexes. Psychopathic personalities are, says Healy, "sometimes slightly defective in intelligence, but often no defect or peculiarity is to be found. Some of them, indeed, are geniuses." Nathan Leopold, just mentioned, is an example of the latter condition. But many definite mental defectives really belong in this class, although they are not usually included therein, because they are dealt with otherwise. I would remark, in passing, that in judging defect of intelligence by the results obtained from the use of mental tests in these cases we have to exercise much caution. Many of them have a certain "shut-in" personality, of which I will speak later. And it is often hard to feel sure that the test-results really represent the best which the patient can do. "Socially," proceeds Healy, "the important points are their weakness of will, and their inability to cope with the demands which society makes as regards self-restraint." I will not quarrel with these expressions, difficult as they are to translate into the language of scientific determinism, for there will be no dispute as to their practical meaning. It will be noticed that Healy's description of these cases is entirely based upon their anti-social characteristics. This was inevitable, for in

the book from which I am quoting he was describing them as they come under notice in court work. Healy makes no attempt to divide them into classes.

Faced with the necessity for the rejection of many of these persons when they were drafted for the army, the United States Surgeon-General devised a system of classification into seven groups. It may be noted that the primary rejections for this cause numbered 0.55 per 1,000 of all recruits examined, while more cases were detected after they had joined the army. This classification is almost identical with that of Kraepelin (7), and it recognizes (a) inadequate personality, (b) paranoid personality, (c) emotional instability, (d) criminalism, (e) pathological lying, (f) sexual psychopathy, and (g) nomadism. It is clear that this classification is of a very diffused character. And we may, at the outset, reject several of the subdivisions. Emotional instability is a characteristic of all the cases with which we are now dealing, and cannot be looked upon as a separate group. Further, it is characteristic of so many and so varied mental abnormalities, that we cannot admit it into a scientific nomenclature. The word "criminalism" begs the whole question. So far as I can understand, it was used in much the same sense as our term "moral imbecile." And some, at least, of the cases of so-called moral imbecility are really instances of these pathological personalities. But the acceptance of moral imbecility, using the term in its ordinary connotation, would seem to imply the conception of a separate "moral sense" and of an "absolute morality." Whereas I take morality to be the result of the pressure of our social relationships. Pathological lying and sexual psychopathy are simply two particular forms of anti-social conduct, although they are both well worthy of study from other points of view. And the term "nomadism" is far too vague. The wandering instinct is found in other conditions, and is, to some extent, present in all of us. We are thus left with the inadequate personality and the paranoid personality. Can we distinguish between these two conditions, so as to regard them as distinct subdivisions? Are we, indeed, entitled to regard them as separate entities at all?

The inadequate personality is described by Rosanoff (8) as a person who "from lack of initiative, ambition, perseverance, or judgment, and often in spite of good educational, social and economic advantages, makes a hopeless failure of all that he undertakes." It is stated that persons of this type often come into contact with the law. But there is no one who cannot recall examples of this condition among his ordinary acquaintances. Are we justified in saying, as some have done, that these cases are

proportionately more common among offenders than among non-offenders? Assertions of this, and of a similar kind, have often been made with no regard to the importance of control observations. I may instance the diverse and sometimes exaggerated estimates which have been made as to the proportion of mental defectives among offenders. In either case it is a question of the standard of comparison which we elect to adopt. And we have no accurate information as to the standard of mentality in the ordinary population.

The paranoid personality is described by Rosanoff (9) and others as being but a minor degree of paranoia. Rosanoff says: "In both cases conceit and suspicion lie at the root of all the maladjustment; only in the case of the paranoid personality they do not lead so far as to produce a delusional system, as they do in paranoia. One sees, however, the same stubborn adherence to a fixed idea, contempt for the opinions of others, bias of judgment leading to distortion of practical values, argumentativeness, and tendency to develop persecutionary ideas." Rosanoff seems to be describing those persons who have no actual delusional system, but in whom we observe a constant suspiciousness, a constant seeing of personal slights in what would appear to others as quite ordinary events, and a tendency to assert that they are particularly unfortunate and that everything and everyone is against them. Since such patients worry excessively over a very slight trouble, worry to a degree quite out of proportion to the ostensible cause, may we not take it that the abnormal degree of worry is not so much a reaction to an environmental condition as a reaction to something in the patient's unconscious mind?

August Hoch found, in a large proportion of his dementia præcox cases, evidence of a special mental constitution, which he termed the "shut-in personality." This mental condition he describes as follows (10): "Persons who do not have a natural tendency to be open and to get into contact with the environment, who are reticent and seclusive, who cannot adapt themselves to situations, who are hard to influence, often sensitive and stubborn, but the latter more in a passive than in an active way. They show little interest in what goes on, often do not participate in the pleasures, cares and pursuits of those around them; although often sensitive, they do not let others know what their conflicts are; they do not unburden their minds, are shy, and have a tendency to live in a world of fancies." It is in this last statement as to the fantasy world that the clue to the whole problem, in my opinion, lies, and it is this thesis which I hope to elaborate. We can bear in mind that, as Bleuler says (11), "The autistic withdrawing of the patient

into his fantasies, which makes every influence acting from without an intolerable interruption, is the most important factor in the production of negativism." Hoch further says (12): "What, after all, is the deterioration in dementia præcox, if not the expression of the constitutional tendencies in their most extreme form, a shutting out of the outside world, a deterioration of interest in the environment, a living in a world apart." To me the man with this "shut-in" type of personality always seems to be in the position of an inaccessible patient who is suffering from an abscess. You could relieve him surgically if you could get at him. But he has locked himself into another room.

It seems at least likely that it was these considerations (*inter alia*) which led Meyer to provide, in the official classification system of the New York State Hospitals, the group of cases labelled "allied to dementia præcox." And the original conception of dementia præcox has now been modified in the direction of an extension. Under the term "schizophrenia" there are now included, in the dementia præcox group, paranoid conditions, other kinds of pathological personality, and certain conditions which were formerly placed in the manic-depressive class. Rosanoff remarks (13) that many of these conditions are so slight in their degree of mental abnormality that they are seldom seen in institutions. If by institutions he means mental hospitals, no doubt his statement is quite true. But they are frequently met with in institutions of other kinds. We meet with them in court work, although they are probably quite as common among persons who do not come into contact with the law. This brings to our notice the fascinating problem as to the reason why one man reacts to his environment in a manner quite different to the reaction of another man, of apparently similar physical constitution, and who has had, generally speaking, identical experiences during his life. I would suggest that the solution of this problem is to be found in the fact that, under certain circumstances, some part of the mind which is normally unconscious becomes conscious and dominates the personality.

It is not necessary for me to deal in detail with the gradual development of fantasy life. It suffices to refer to Ferenczi's work on the subject (14). He has shown that the primary unconscious fantasy comes into being on account of the constant triumphs of reality inducing, by means of fantasy, a re-occupation of the interuterine life in which the pleasure principle is supreme. The indulgence of this and of other fantasies is, or so I venture to think, within wide limits, a useful process. And were it not for fantasy our lives would be considerably more unhappy than is actually the case. There are, however, limits to the normal, the useful,

exercise of fantasy. When these limits are passed we get mental abnormalities of various kinds.

Starting from Ferenczi's primal fantasy, it is possible to trace the gradual growth, development and modification of that fantasy by environmental conditions. The first stage is that of infancy, in which we have the almost unmodified primal fantasy of supremacy. Ferenczi has pointed out that this fantasy is normally unconscious, introducing itself into consciousness by indirect alterations of our conscious actions. Since the infant is absolutely egotistic, and since its desires tend to be satisfied by its mother, or mother-surrogate, the dominant form of sexuality (using the word in its full Freudian sense), and the typical fantasy, at this stage may well be termed incestuous.

The infantile stage gradually fades into that of childhood, a stage characterized by the formation of the "ego-estimate." The dominant fantasy may be described as narcissistic. The child begins to resent the authority exercised by adults. These contests with authority are usually ineffective. The child desires someone who will provide him with the sympathy which he cannot get from adults, he being quite out of harmony with the adult code of conduct. He does not turn to another child for the provision of this desired sympathy, for the other child is himself too egotistic to give adequate sympathy, and is occupied with his own personal difficulties. Our typical child is driven elsewhere. He may select some animal or toy as a confidant for his woes. (It is interesting to note that Richard Loeb, mentioned just now, had a "teddy-bear" fantasy, which he carried into adult life.) Far more often, however, our child creates, by means of fantasy, an "ideal companion," who is always full of unwearying interest and sympathetic understanding. But this ideal companion is, by reason of his possession of these desirable traits, quite under the dominance of his creator. Hence we see that there is a marked element of supremacy in the fantasy of this second stage.

We then get the latency period, occurring before the onset of puberty. I am speaking of psychological and not of physiological puberty. For the two do not necessarily coincide in time, nor can we regard the physiological maturation of the genital glands as the single, or even as the essential factor in the production of psychological puberty. As Freud has shown, puberty is the resultant of the fusion of a number of strands—psychological and physiological. During the latency period the prevailing fantasy is that of the team, and may be regarded as definitely homo-sexual. A boy who could never be an actual leader compensates for this inferiority by joining, either actually or in fantasy, a gang, and projecting himself upon

the leader ; while the actual leader tends to introject himself upon the other members of the gang (15). Here again we see the working of the primal fantasy of supremacy.

Stanley Hall (16) said : " Partly its imitative, and partly its pragmatic nature makes youth dramatic, fond of assuming rôles and poses. Excess of normal vitality not only safely can, but must explore the beginnings of many morbidities, both to know the more varied and intense possibilities of human life, and to evoke the sanitizing correctives." He also pointed out how Lombroso, with his anatomical view, lacked all appreciation of the real problems of adolescence. The normal development of puberty includes the development of various forces which tend to inhibit anti-social action. But the development of these inhibitory forces may come too late. And the apparent mental incoherence of adolescence, of which Healy (17) speaks, may be due to the patient's preoccupation with thoughts of immense personal importance to him and connected with his fantasies.

In the adolescent stage the whole position is, of course, dominated by sex, although the sexual characteristics of the fantasies of this stage are largely veiled. The ardent adoption of some religious system is a frequent method of expression for the libido—a fact which was well known before the correct explanation was given. If anyone wishes to read a most dramatic description, I would refer him to Compton Mackenzie's novel, *Sinister Street*, in which not only this phase, but the whole mental development of the hero is worked out by a master hand, and with marvellous understanding. Injudicious handling of the adolescent may do enormous harm, as we all know well. The adolescent takes himself very seriously. If those about him do not take him with due gravity, he is very apt to draw into himself, and in extreme cases we get a condition of dementia præcox. I cannot exaggerate the importance of fantasy. If we win our patient's confidence, and learn about his fantasies, we can learn more in that way than in any other, and so are enabled to do more to help him. If, for instance, we investigate the fantasies which always accompany the act of masturbation, we shall find them of a most illuminating character.

Finally, we have the adult stage, when the psycho-physical synthesis is complete. The individual is then ready for mating and parenthood. This, however, in our modern civilized state, is usually delayed. A compromise has to be made. And fantasy plays a most important part in the successful formation of this compromise. And we have not finished with fantasy yet ; it takes its part in complete adult life. For example, the sex act is not purely physical, it has many psychical components. And satisfaction

of these psychical components often has to be obtained by means of fantasy.

I suggest the view that as the stages, which I have briefly hinted at, fade into each other, so the predominant fantasies are not destroyed, but are repressed into the unconscious. Here they continue to act with dynamic force. Indeed, traces, and more than traces, of the predominant fantasies often remain in consciousness, notably the fantasy of supremacy. It is well known that we may get a fixation at any stage of development. So also we may get a regression to any past stage in development. And this seems quite consistent with Meyer's theory of dementia præcox, which he regards as the result of the unchecked development of abnormal types of reaction, replacing by substitution healthy and efficient mental reactions, such as are required to make the constant necessary adjustments to our environment (18). Where we get such regression, mental disease will be the result. In dementia præcox we get a return to simple infantile sexuality; we may have a perfect picture of the Œdipus complex in the delusions from which our patient suffers. In manic-depressive cases the regression has not proceeded so far; it has only gone back to the stage of puberty (19). And minor degrees of regression will produce the types of mental abnormality which have been described under the name of "psychopathic personality." According to the degree and the type of regression, so we may have the inadequate or the paranoid type of personality. But the process is, in either case, identical in all essentials, and this is illustrated in the analysis of cases of this kind. Conflicts which arise in this way are—or so I believe—one great cause of sex perversions. Nor, in this connection, must we forget the constant struggle between the self-assertive and the submissive tendencies, the masculine and feminine tendencies as Adler has called them (20). Adler's theory is quite consistent with the psycho-analytic view that there is a repressed stratum of homo-sexuality in everyone. Fantasy often—far more often than is generally known—takes the form of an imaginary indulgence of this repressed tendency. At any rate, such is the case with men. And I have reason to believe that this applies to women also.

The view which I have endeavoured to enunciate gives us a clue to the explanation of certain perplexing phenomena. It is well known that in some cases of dementia præcox we may get a history of some illness or some cranial injury, which is assigned as a cause of the psychosis. Quite often we get a similar history in cases of psychopathic personality, although in the majority of instances we get no such history. We may be told that before the illness or the injury our patient was quite normal. Now take the case of

a man who has a strong tendency to regression. He may have held a place in the world, although it may be that he has held it with a considerable degree of effort, and with very partial success. Hidden in his unconscious lies the wish to return to a former stage in his development, to the stage when he was entirely cared for by the mother, when initiative and self-assertion were not required. Let us suppose that this man has an illness, a severe accident, or even a slight accident. After every illness some effort has to be made to regain healthy reaction to the environment, to take up the daily burden again. Such an effort comes easily to the man who is happy in his daily life. But let us assume that such happiness is absent, perhaps through the action of some mental conflict. The case is then quite other. The illness, or the trauma, provides opportunity for the pre-existing unconscious tendencies to express themselves. The man gets the idea that the whole world is against him, that it is useless for him to continue the struggle against the environmental forces over which he has no control. These forces represent the father, against whom he feels antagonism. There is a conflict between his desire to take his place in the world and his desire to return to some former stage in development. If the original conflict has been a severe one, circumstances may prevent him from making the required effort. All kinds of results, among which may be the symptoms of psychopathic personality, may follow. I take it that this is what has occurred in these cases of character changes which we see after cranial injuries (often slight) and after attacks of encephalitis lethargica. And the reason why these character changes are so common in these cases is that there has been a period of unconsciousness, a definite breach (of longer or shorter duration) in the stream of stimuli from the environment. It is not strange that the process so initiated may continue. Some of these cases are able to make readjustments, after a lapse of time, this indicating that the patient has been able to reach a solution of his problem by his own endeavours. When the necessary co-operation of the patient is obtainable, the process of re-adjustment may often be assisted by psycho-analysis.

And so we see that, if the view which I have tried to indicate is correct, these abnormalities of conduct (and it is in conduct that we are interested) arise on a psychogenic basis. And it is in the taking of a psychological view that the hope for the future lies. Adhesion to epiphenomenalism has proved bankrupt. Attempts to improve conduct by means of alterations in the patient's environment provide only too often a task beyond our powers. But comprehension of the psychological method of the production of their mental abnormalities enables us now to assist many of our patients.

And further knowledge of the mechanism involved will, with the aid of intensive study, enable us to assist still more in the days to come. I venture to stress this point of psychogenesis. For our views on the psycho-physical relation are something far beyond metaphysical subtleties, and must affect not only our thoughts upon technical questions of psychiatry, but also all our practical work. I may put the matter in this way. The question as to whether we are to regard these cases from a psychological or a physiological aspect is no mere matter of theory; it is of the utmost practical importance. If the mental abnormality is due to some unknown physical cause, we cannot even hope to deal with it until such time as this becomes known. And the little which is at present known, as concerns the physical alterations which are associated with mental disorder, does not tend to any hopeful attitude as regards treatment or prevention. But if we look at the problem in psychological terms, we can study these psychological abnormalities in their relation to other psychological abnormalities. This makes any of the abnormal reactions which I have sketched an object of investigation in the same way as the reactions of normal conduct. We may be able to discover the psychological laws which govern the appearance of these abnormal reactions. Having discovered these psychological laws, we may reasonably hope to modify, by psychological methods, the exhibitions of the abnormal psychological tendency.

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*Institutional Treatment of Mental Defectives, with Special
Reference to Occupation.*⁽¹⁾ By A. M. McCUTCHEON, M.B.,
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THE problem of the treatment of defectives is somewhat different from that met with in regard to the patients in mental hospitals. In the case of mental hospital patients most of them have filled useful positions in the world, and also the percentage of possible recoveries is hopeful, and many of them are able to resume their former occupations. But mental defectives are social misfits, many with anti-social traits, others neglected and ill-treated, and again others of a much lower grade, many of whom are helpless and even cot-cases. None of these have ever taken their proper place in society, and their educational attainments range from only fair to practically *nil*, and in all too many cases they will never be discharged to outside life. A certain number of defectives, it is true, can be trained at day special schools and occupational centres, and even advance to doing some elementary form of work without the necessity for being sent to institutions, and a certain number, after receiving training in institutions, can be discharged and work for a number of years. But it must be borne in mind that these people become old men and women so far as their mind is concerned quite early in life, and the amount of work which may be obtained from them under these conditions is not very great. We are, however, just now concerned more with the institution side of mental deficiency, and institutions for defectives fall under two headings—training and custodial. The latter institutions, of course, take the lowest grades of defectives who are incapable of work, whereas the former take those cases which might be called “improvable.” The objects of treatment in such institutions are:

- (1) To correct their anti-social conduct.
- (2) To develop their self-respect and ensure their happiness.
- (3) To teach them various kinds of work for which they are best fitted by reason of their mental and physical condition,

(¹) A paper read at the Annual Meeting held at Birmingham, July 10, 1925.

and to recover from them some contribution, however small, towards the cost of their maintenance, to lead up to discharge if possible.

(4) To prevent the procreation of children, and so to stop the handing on of the blight to successive generations.

It seems to me that all these objects can best be achieved by segregation in institutions, preferably of the colony type, whereas sterilization, which is advocated by some, solves, in my opinion, only one of the objects, namely, that of preventing the procreation of children. It certainly does not tackle the conduct aspect, nor the work aspect, and it is surprising the number of defectives that one finds attempting to carry on jobs with very indifferent success. These are the people who drift about from place to place, unable to hold a position for any length of time, and this surely constitutes a distinct menace to our industrial position in the world.

The keynote of our work in an institution must obviously be largely classification, and after careful consideration I decided to classify all my cases on four factors taken in conjunction one with the other: Age. Mental age. Physical condition. Conduct.

Epileptics we do not grade as such, but grade them in the light of the above enumerated factors. The aim is to obtain, as far as possible, a group of people having much the same capabilities and outlook, which prevents patients being discouraged if they find themselves among others who are able to do a much better type of work than they can themselves, or who are stronger physically. It also prevents better behaved patients being upset by bad conduct cases. As these four factors are constantly changing, so, of course, must re-classification go on continually.

Types of defectives needing institutional treatment may be enumerated as follows:—

(A) *Children* :

(1) High-grade cases who have been conduct problems, outside, or who are markedly unstable, particularly during the period of adolescence, and also those who come from very bad homes. Of these a number may later on be discharged after training, and when their conduct has become more stable.

(2) Epileptic and physically defective children.

(3) The lowest grade children, imbeciles and idiots, many of whom are custodial cases.

(B) *Adults* :

(1) The high-grade conduct cases, those displaying marked instability, and those with bad homes. Many of these have already been in trouble, and come to us from police courts and workhouse maternity wards.

(2) Medium grade defectives, such as the lower grade of feeble-minded and the higher grade of imbeciles. All these high- and medium-grade cases may be taught trades with a view to discharge later on to ordinary life or to guardianship under some suitable person.

(3) Epileptic and physically defective persons who are obviously unable to earn their living outside in the ordinary labour market.

(4) Lowest grade imbeciles and idiots, who are again rather custodial cases.

Industrial colonies for the treatment of defectives are still, in this country, not very numerous, and some account of the working of such an institution may be of interest. My observations are based on the work done at Monyhull, which has accommodation for over 1,100 patients. It is a mixed colony, accommodating men, women and children of all ages and of all grades. The children's section of 350 beds is a certified special school recognized by the Board of Education and by the Board of Control, and the remaining beds are in the adult section. The institution is built on the villa system, the homes accommodating on the adult side 50 patients, and on the children's side 45 patients in each home. The estate covers over 300 acres, of which about 50 acres are taken up by the buildings. I am quite well aware that there are those who do not believe in such institutions accommodating both sexes and also 'children. Our children, however, are kept quite separate from the adults, and derive advantages from being associated with a larger institution that would otherwise be impossible if the children's section were run as a separate institution. We believe that the men are able to perform work which is useful to the women, and *vice versa*, while the men and women together are able to do much which is of great benefit to the children. But it must be admitted, however, that this type of institution involves risks and much greater responsibilities for those who are administering it, but the advantages certainly outweigh all the disadvantages. There are no locked doors in the colony except at nights, when there is a much smaller staff on duty, and the estate is bounded in most parts by low hedges and fences which can be climbed anywhere, and the patients are permitted to move about as freely as possible within the institution to encourage the feeling of liberty. The grounds are laid out as tastefully as we are able, and it is surprising what a great help this is in obtaining the goodwill of the patients and their friends. They come to the institution in the first place prejudiced and hostile, and ready to regard it as worse than a prison, but the sight of the gardens and the patients moving freely about rapidly dispels

their fears, and so we are frequently able to obtain their confidence at a very much earlier stage than would otherwise have been the case.

TREATMENT.

We regard treatment as coming under three heads, each being of equal importance—medical, occupational, and recreational.

Medical treatment.—Great care, of course, must be taken to overhaul every patient regularly in the endeavour to correct any disability present. Many of the patients are subnormal physically, and we pay great attention to their diet and eliminate monotony as far as we are able. Throughout the winter, and in some cases, indeed, throughout the year, weakly patients have their diet supplemented by cod-liver oil and malt, with marked benefit. To this and to the liberal diet and to the general attention paid to hygiene we attribute our freedom from tuberculosis. The villa system on which the colony is built has proved of great benefit in enabling us to cope with any outbreak of infectious disease with the least possible dislocation to the rest of the institution. Epilepsy is a factor in about 25 *per cent.* of our patients. In these cases we have tried dieting and most of the usual drugs used in such cases, but I am coming more and more to believe that the most important factors in keeping our epileptics well and fairly free from attacks are general hygienic treatment and freedom from anxiety as to where to-morrow's breakfast is to come from. Frequently we find the number of fits is much diminished, or even *nil*, as the result of treatment, but in the case of most of them if they are discharged we have found that the attacks recommence as soon as the patient is faced with the worry of fending for himself in the outside world. In a certain number of cases of thyroid involvement gland treatment gives fair results, and I am of the opinion that there is a good field for research in the study of the endocrines, and I understand that such research is being carried out by the Birmingham Joint Board of Mental Research. It may be as well here to refer to the beneficial results of exercise as apart from games. Some four years ago I was very much struck by the bad carriage and lack of alertness of our boys and younger men, and it was decided to institute an elementary form of physical drill amongst the children and men. After six months the difference was almost incredible. The patients moved much more alertly, carried themselves better, and altogether seemed much more responsive to their surroundings. Amongst the women we have substituted dancing for physical drill, and this has proved also of very great benefit. The Boy Scouts and Girl Guides movements for the children have certainly proved to

be excellent institutions, giving the children healthy exercise and broadening their interests and outlook very considerably. If I venture to make a criticism with regard to these movements, it is that they seem to me to be very expensive with regard to outfit and so on, and some of their record-keeping appears to me to be rather complicated.

With regard to general medical and surgical treatment, we are fortunate in being associated with the largest hospital in the town, and are able always to obtain extra advice on any case in which it is necessary, and also any special treatment that could not conveniently be carried out in the colony.

Of late years much greater attention has been paid to dental treatment, and a review of the dental charts reveals several rather interesting features. We seem to have two very distinct classes amongst our people: those with excellent teeth—in fact some practically perfect—and the other extreme, a large number with very bad teeth. I have not had an opportunity recently of inquiring as to whether this state of affairs is found amongst the insane, but it struck me as being rather remarkable that we should have two such different classes.

Occupational treatment.—We are always told that ordinary people do not benefit from idleness, but it is astounding how quickly defectives go downhill mentally and physically if they are not kept suitably occupied. It is regrettable that, in a number of institutions where defectives are housed, one can see them ranged round the walls at almost any hour of the day, doing nothing except getting into trouble and making a nuisance of themselves, and at the same time deteriorating generally. The possibility of trouble increases in proportion to the amount of idle time that a defective has on his hands. We have therefore made it a rule that everyone, man, woman or child, each working day, goes out to some definite occupation unless he is under medical treatment, or unless he is kept in the home for some other reason. Thus each home is emptied during the day of all but the sick and those engaged in domestic duties. The patients get a change of surroundings, of faces, and to a certain extent of staff, and this seems to keep them much more contented and happy.

(a) *Children.*—The four grading factors enumerated above apply to the placing of the children in their respective homes, and everyone is tried out carefully at school, where there is a staff of specially trained teachers, and where the children are carefully placed after testing. Those who are able to benefit by continuing their general training (three Rs work) go on with this, combined with various forms of handicraft work, physical training, gardening and organized

games. The lower grade children who cannot benefit from "three Rs" work, after examination and testing, are put on handicraft work with gardening and physical training and games. Fortunately for us the syllabus for special schools laid down by the Board of Education is very elastic, and we are so enabled to draw up our syllabus that the handicraft work gives not only definite educational benefit, but leads directly to the occupations which are carried on afterwards in the adult colony. We also run a nursery class, where we place children who are too low grade to benefit from any usual school instruction, and this enables us to get the greatest number of our children out from the homes every day. There is finally a certain percentage of the children, about 2 *per cent.*, composed of idiots and the lowest grade of imbeciles, who cannot be sent to school at all, and who are cared for entirely in the homes.

(b) *Adults.*—Our grading factors, as well as placing a patient in the home, determine largely the occupation that he will follow. We endeavour to place him at an occupation that will benefit his mental and physical condition, and will turn him from a useless and often troublesome member into a person doing his own share of the work of the community. Great importance must, of course, be placed on the fact that the amount of work done by any individual patient is of very much less importance than the fact that he is fully occupied, because one must be sure that no element of sweated labour is allowed to creep in, and no one is asked to turn out a given amount of work in any given time. In fact this is one of our difficulties, as we can never really depend upon the output of any industry, because this varies very considerably, depending upon the patients' mental condition and upon their conduct generally. When we first gave serious attention to the question of industrial training, the process of finding the right occupation was, I am afraid, rather one of "trial and error," but we have improved on that very considerably now, as a result of the school organization. There, as I have mentioned above, the handicraft work is designed to lead on to the various industries in the adult section, and after observation and trial in the school, we are nearly always able to place the boy or girl at the job for which the greatest aptitude has been shown.

Now what can we do in the way of providing suitable occupations in an institution? Obviously, of course, there is always domestic work, for both men and women, and outdoor work on the land. These can be provided at any institution, no matter how small, but it seems to me that we should aim at something a great deal better than these—occupations to provide more variety and to give scope for the expression of the patients' real capabilities, so

that they are not merely domestic drudges nor agricultural labourers. It is surprising what a stimulus it is to defectives actually to achieve the making of something, so we decided to push on with occupations which involve constructive work, but we were faced with the lack of accommodation and suitable outfit. This we remedied by erecting army huts for workshops, and the greatest part of the outfit benches, etc., we made ourselves. Now the men are employed in mat-making, brushmaking, tailoring, basket-making, shoe-making and upholstery, in addition to working with the gardeners and on the farm and in their own domestic duties. All the joiners, painters, bricklayers and engineers have patients working with them, and it is extraordinary how keen and interested these men have become in their work. The women, in addition to doing their own domestic work, work in the kitchen, bakehouse, laundry, and administrative quarters, and there are also large sewing-rooms where every type of sewing and knitting is done, woollen rug-making shops, and basket-making shops. Gardening is also now taught, and a considerable amount of work in connection with the children, both in the homes and in the school, is now done by selected adult female patients. Throughout all these occupations, wherever possible, the higher grade and better patients should be led up to doing something a trifle more artistic, as this is a very great incentive to keenness. With this end in view we hold a sale of work every two years, and our patients produce a large number of articles for this sale, and so we are able to give greater scope and variety in the work which they are doing. Our grading factors have to be kept very clearly in mind when we are placing patients at these various occupations, and a constant review must be made to ensure that the man or woman is really in the right place, and, as mentioned previously, it cannot be too strongly emphasized that the patient is first and the output very much second. The point which will arise in connection with starting industries is, of course, one of expense. Our industries were started at a time when everything was at its highest price and when there was very urgent need for economy, but I do not think that any institution, however small and however badly off, need be deterred unduly on the grounds of cost. Rooms can be adapted or huts or sheds erected and simple equipment provided, which will lead to the occupation being started, and refinements can be added afterwards. There are institutions which run very excellent workshops with power plant and greater refinements, and of course they are able to turn out a very large amount of work, but the same good to the patients can be achieved in small institutions and in others not so fortunately placed as these already mentioned, by starting in a small way and

not using such elaborate equipment. A point that is worth considering is that one must not go on producing articles without providing means for their disposal. In the case of voluntary institutions this is usually a very simple matter, as philanthropic persons are usually only too glad to buy the output to help on the work. In the case of rate-aided institutions the position is a trifle more difficult, but it can be got over by organization. What we have done is to arrange for our output, wherever possible, to be taken by other institutions belonging to the same Board. There seems to me to be no reason why a working arrangement should not be made between various local authorities to help one another in this direction, but of course one simply cannot go on making articles and piling them up in store without some attention being paid to their disposal, otherwise the cost of running an industry would become prohibitive. Another point in connection with industries is that it would appear to be very desirable to have that industry started by someone who has been trained at that particular work, preferably a tradesman who has a thorough knowledge of the work from every point of view, and this is the method that we have adopted. We have then brought in attendants and nurses to be trained, as far as we are able, as understudies, but it seemed necessary that when the industry was started it should commence on the right lines, and not be muddled through by some nurse or attendant attempting to teach a trade without real knowledge. It is extraordinary how proud patients become when they advance somewhat in these occupations, and I have found among my patients a very much happier and more contented spirit, which I am sure is largely due to the new interests that the occupations have given them, and to the fact that the patients in their own way feel that they are actually doing something, and are no longer regarded merely as useless members of society.

Recreation.—As we have to teach the patients to work, so, of course, we have to teach them to play, and it is the off-duty hours frequently which cause the greatest anxiety, particularly amongst the higher grade patients. It is then that difficulties arise and bad habits of various sorts are contracted. We therefore decided to provide much increased facilities for the teaching and playing of various sorts of organized games. The children in school are taught organized games of different kinds, and these naturally play a considerable part in the school curriculum, but quite apart from these we have games taught to the children by nurses and attendants outside school hours, and we have recently provided extra playing-fields for this purpose. The men have a fine cricket and football ground and a bowling green, all of which are kept

in full use. Added interest is gained by having matches with outside teams who visit the colony and play specially selected teams drawn from amongst our own people. It is a recognized part of the duty of nurses and attendants to play games with their patients. Cricket and football provide plenty of outlet for the energy displayed by the more able-bodied men, and the bowling green allows even the cripples to get healthy and interesting recreation. These games, together with the Swedish drill, which I mentioned earlier, provide ample healthy occupation. For the women we have recently provided large playing-fields, with tennis-courts for the more active and younger ones and croquet greens for the older and crippled women, and various forms of ball games can now be taught to practically every one of the females. In addition to all these outdoor games, the usual indoor games are provided, and we find that the teaching of dancing to the patients generally has been very much appreciated. We run weekly concerts provided by our own staff, by our own patients, and by kind friends from outside, who visit regularly, and cinemas, of course, are very helpful. We have in mind the provision of a band, but of course with our patients this will take years to bring to any degree of proficiency. All these games naturally provide us with an excellent means of maintaining discipline, and remove that dreadful monotony of institution life—a reproach that is so often levelled against our work. Pianos and gramophones are provided throughout the institution, and are much appreciated, although the poor instruments naturally get very sad usage! We encourage walks and shopping expeditions, and for specially selected patients trips to places of interest round the town, and we attach the very greatest importance to the granting of short leave from the institution. In the latter cases very careful inquiry is made as to the home conditions and means of supervision, and at stated intervals, if the patients' mental and physical condition allow of it, they are permitted to be absent on the usual 48 hours' week-end leave. The children under similar conditions go home, many of them at the usual school holidays.

Considerable attention of late years has been paid everywhere to the raising of the standard of nurses in mental institutions, and I am strongly of the opinion that the work among defectives stands or falls very largely on the efforts of the nursing staff. If they are not properly trained, if they are not honest, and if they do not set the right tone with the patients, no amount of work done by the doctors or matrons can ever hope to succeed. From my own experience in mental hospitals and with defectives I consider that the defective is, if anything, the more difficult patient to deal with, and on the whole I think he makes more demand on the nurses'

patience and good temper, and that is why I consider that the nursing staff really determine the success or failure in an institution for mental defectives. I think it will be generally conceded that too much attention cannot be paid to the selection and careful progressive training of members of the staff, and in this direction the Association has always been very encouraging and helpful.

Our method of discharge for some time past has been that adopted by the Board of Control, namely, long leave of absence "on trial," and I think this is undoubtedly the best method. This may be further developed by the institution of hostels, but in this matter one must bear in mind the very bad state of the labour market over the whole country. One also has to remember that the cases which might reasonably be expected to be discharged are those of the highest grade, and unfortunately it is amongst these that we have the greatest number of potential wrong-doers, especially among the women, and this is a point which has to be firmly borne in mind when the question of discharge or of leave on long absence or of transfer to a hostel is recommended.

Mental deficiency inevitably costs the nation money, but the kindest and most economical way for suitable cases is, in my opinion, institutional care. Neglect to deal with this problem means a cost in misery, vice and industrial inefficiency which cannot be properly estimated, and all the time the problem becomes more and more serious, and is bound, in the long run, to affect our position among the other great nations of the world.

The Iodine Content of Thyroid Gland.⁽¹⁾ By F. A. PICKWORTH, B.Sc., M.B., Ph.C., Pathologist to the Joint Board of Research for Mental Diseases, Birmingham.

At the Annual Meeting of this Association held at Belfast last July, Sir Frederick Mott gave you an address on the thyroid gland and promised a further contribution with regard to the iodine content. This paper is an attempt to correlate the iodine content with histological structure and with the mental and bodily condition of the patient. I must apologize for the work being far from complete, as most of the time since then has been taken up with the examination of the published methods for the estimation of iodine in the gland, and owing to certain objections to these methods it

(¹) A paper read at the Annual Meeting held at Birmingham, July 9, 1925.

has been necessary to invent a process without these objections, and which, at the same time, is carried out with a minimum expenditure of time and material.

The literature on the subject is so enormous that it would be quite impossible to review the past work satisfactorily; certain important facts, however, may be briefly referred to.

We know that the slowness of thought and ideation and the defect of speech as shown by patients suffering with myxœdema are due to thyroid deficiency, and the symptoms are removed by administration of the gland, also the non-development of the brain in cretinous idiocy is to be attributed to absence of the thyroid gland, and such cases are benefited often in a miraculous manner by administration of the gland; no other treatment has a comparable or even appreciable effect upon these cases, and this suggests the importance of the thyroid in the study of mental diseases.

Although salts of iodine have been used since 1820 in the treatment of thyroid diseases, it was not until 1895 that Kocher suggested that iodine might be present in the thyroid gland.

A search for it was made at Berne, but none found; however, Baumann, in the same year, evolved a method by which he could satisfactorily demonstrate it.

It was soon found that the activity of thyroid gland was by no means to be supplanted by iodides. Hutchinson remarked, "One would conclude that the iodine in thyroid gland, if it plays an essential part at all, does so simply by nature of the special form of combination in which it exists."

An important advance was made by Reid Hunt and Seidell, who demonstrated experimentally that the activity of thyroid gland was definitely proportional to its iodine content—a parallelism which has since been repeatedly confirmed in the clinical treatment of myxœdema and cretins. Since, therefore, the physiological activity of the gland is proportional to its iodine content, the latter may be used as an index of the value of the gland in the animal economy. The necessity of a reliable method for its estimation is therefore evident.

Iodine is very reactive and volatile, so that its estimation is not easy. The first search for it found none at all; later so many methods were advocated that it was said, "The methods for estimating iodine may be divided into two—those which give some and those which give none." Recently better methods have been put forward, the most important of which are briefly criticized below. In comparing them with the method to be given later, attention is drawn to the desirability of avoiding all processes

involving unknown factors, and also those subject to a large personal equation (such as the colorimetric).

Baumann's method and its large number of modifications consists in the fusion of the gland with sodium hydroxide, the completion of destruction of the organic matter being effected by potassium nitrate. Acidification of the dissolved melt sets free nitrous acid from the reduced nitrate and liberates iodine, which is then extracted by means of an organic solvent. The solution is suitably clarified and evaporated, and the iodine estimated colorimetrically or by titration. The objection to all modifications of this method is that the effervescence which occurs on acidification causes a loss of iodine; passage of the evolved gases through some of the organic solvent has been suggested and reduces the error, but makes the process unwieldy.

Hunter's method destroys the organic compounds by heating with a mixture of potassium and sodium carbonates and nitrates. The dissolved melt is treated while still alkaline with sodium hypochlorite. The solution is acidified and boiled to expel excess of chlorine, potassium iodide added and the iodine titrated with thiosulphate. The objections are the possible formation of oxy-chlorine compounds (Kendall), which would invalidate the result, and also the fact that the fusion process, although satisfactory for such easily decomposed substances as sulphonated aromatic iodine compounds (chosen by Hunter as a test substance), is inadequate with organic iodine compounds such as are met with in thyroid. Kelly and Husband also find that the process gives low results with seaweed.

Kendall's process as modified by Kelly and Husband appeared recently in *Bioch. Journal*, 1924, No. 5, while the present work was in progress. It consists of alkali fusion with sodium hydroxide and completion of the oxidation with potassium nitrate, as in the Baumann method, acidification with phosphoric acid, prolonged boiling to get rid of the nitrous acid; sulphite is added and the SO_2 boiled off; then addition of bromine, excess of which is also got rid of by prolonged boiling, cooling, adding potassium iodide and titrating the iodine liberated. One objection, as in the Baumann method, is the possible loss of iodine in the neutralization of the mixture with acid, which liberates nitrous acid and much carbon dioxide. Another objection is the fact, easily demonstrable in a test-tube, that bromides liberate iodine from potassium iodate; bromides are necessarily formed in the process of oxidation.

In Fellenberg's process, *Biochemische Zeit.*, 1924, 152½, the fusion process differs from the foregoing in that no potassium nitrate is added, but iodine is estimated colorimetrically. This method is not

intended to be exactly quantitative, since the results are multiplied by $\frac{4}{3}$ to allow for loss. It is, however, a good method for the detection of minute amounts of iodine.

The general results by these methods show a very low iodine-content of the gland in infants and children. A seasonal variation has been demonstrated in sheep's thyroids in America by Seidell and Fenger, but Martin's results for English thyroids show much less variation.

It is also stated that animals near the sea have more iodine than those inland, and that herbivorous animals have more iodine than carnivorous.

The diet, especially vitamins or their absence, influences the iodine content in a remarkable manner.

The normal iodine content of the adult human thyroid is given by Aschoff as 2 to 9 mgrm. per gland, or 30-90 mgrm. per 100 grm. of dry gland. Zunz analysed the thyroids of a large number of Belgian soldiers and concluded that 15.0 mg. was the average normal amount per gland. Jolin analysed a number of thyroid glands in 1906, but could find no relation of iodine content to conditions of health or disease. Remardin and Marchand, 1908, examined a large number of thyroids from mental hospital patients, and stated it was impossible to establish any constant relation between thyroid change and the form of mental disorder of the patient. Pellegrini states that there is no definite relation between the amount of colloid and that of iodine in the gland. Mott and Kojima established the fact that the weight of the thyroid had no relation to the body-weight of the patient in mental hospital cases.

The basal metabolic rate is generally accepted to correspond very closely with the activity of the thyroid gland, and is a valuable clinical index of its efficiency.

We have made a considerable number of determinations of the basal metabolic rate of patients, details of which are to be found in the *Annual Report of the Birmingham Joint Board of Research for Mental Diseases*.

The new method depends upon the destruction of organic matter by fusion with alkali without addition of any oxidizing material; the melt is dissolved in water and a few drops of sulphite solution added. The solution now containing iodine as sodium iodide is acidified and the iodide oxidized to iodate by potassium permanganate, excess of which is got rid of by animal charcoal (which is shown by experiments not to reduce the iodate); the mixture is filtered and the iodate decomposed by adding iodide, and the resulting iodine is titrated with thiosulphate.

The method has been tested with experimental mixtures of iodide

and dried meat, and found to give results agreeing with the theoretical figure, and concordant results were obtained with thyroid gland at different times and under conditions so that the results could not be anticipated during the analysis.

(For practical details see the complete process, which has been sent to the *Biochemical Journal*.)

RESULTS OBTAINED.

The following charts show the results obtained from various specimens of thyroid gland. Sixty of these have been supplied to Sir F. W. Mott by the Maudsley Hospital, the Camberwell Infirmary (through the kindness of the Medical Superintendent, Dr. E. W. G. Masterman), and the London County Mental Hospitals (by the kindness of their respective medical superintendents); 10 have been supplied by the Queen's General Hospital, Birmingham, by the kindness of Prof. Haswell Wilson, and 48 are from autopsies at Hollymoor.

The histological structure of 57 of the above glands has been investigated, under the supervision of Sir Frederick Mott, by Dr. Hilda Cunningham, who has been working for some time under Dr. Williamson, the Arris and Gale Lecturer on the Thyroid.

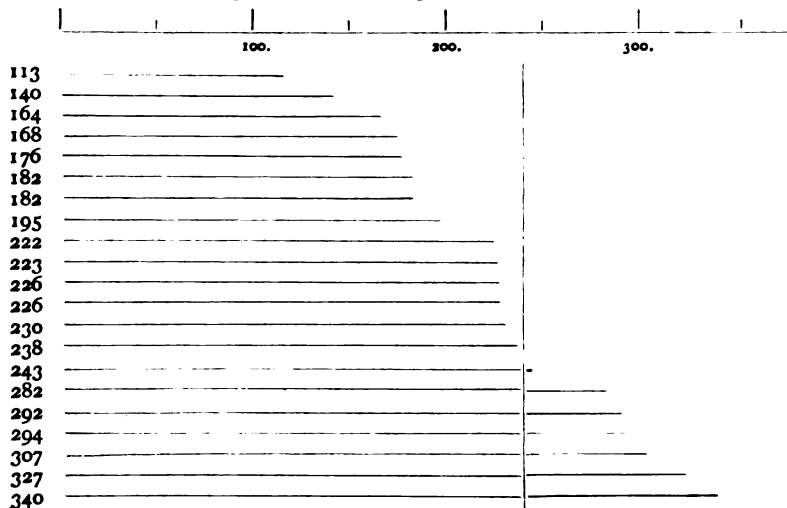
The extremes of 0.4 and 50.6 of iodine in the whole gland obtained in one group of cases would be quite meaningless if expressed as an average of 25.5 mg.; it is therefore obviously useless to express the results in averages; in addition the factor of variability would be missed. It is probable that conditions showing extreme variability in the iodine content of the gland are the conditions in which the thyroid hormone is of great use to the system, and, of course, these groups include cases both of thyroid stimulation and of thyroid exhaustion.

The results are therefore expressed in charts in which the amount of iodine in each gland and the variability of iodine in the whole group can be seen by inspection. The amount of iodine is represented by horizontal lines, the normal being given for comparison.

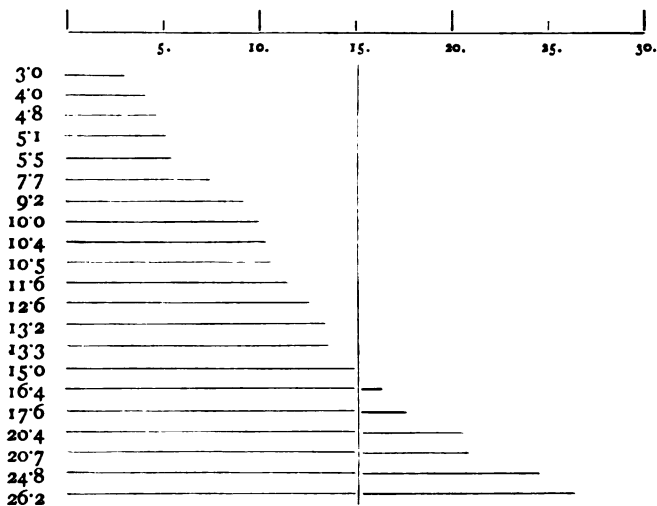
The normal for the whole gland has been taken from Zunz figures of 15 mgrm., and the percentage of iodine in the dried gland is calculated from this figure and an assumed average normal gland weighing 25 grm. and containing 75 *per cent.* of water, which is 240 mgrm. per 100 grm. of dried gland.

The following charts show the relation of the iodine content to histological structure.

HISTOLOGICALLY NORMAL (Colloid storage nucleus resting).

A. *Mgram. Iodine in 100 grm. Dried Gland.*

Normal = 240 mgram. per 100 grm. dried gland.

B. *Mgram. Iodine in Whole Gland.*

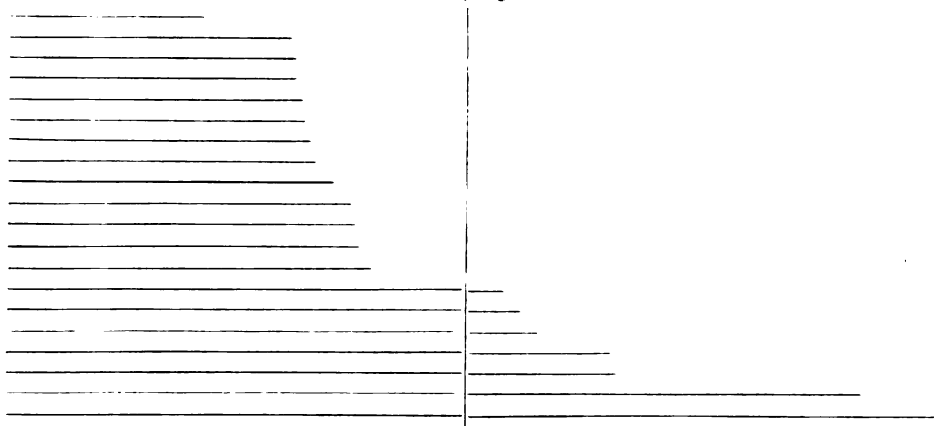
Inspection of the above chart A shows the iodine percentage to be almost normal and variations are not great. This is in close agreement with the histologically normal appearance.

The total iodine varies owing to the varying size of the glands, being in most cases much less than the normal of 25 grm.

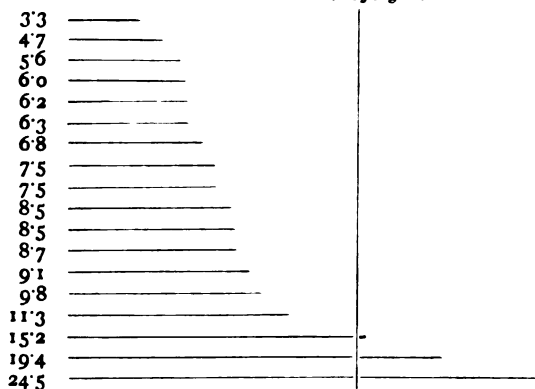
HISTOLOGICALLY NORMAL, EXCEPT FIBROSIS PRESENT.

A. *Mgram. Iodine in 100 gram. Dried Gland.*

Normal 240 mgrm.

B. *Mgram. Iodine in Whole Gland.*

Normal 15 mgrm.



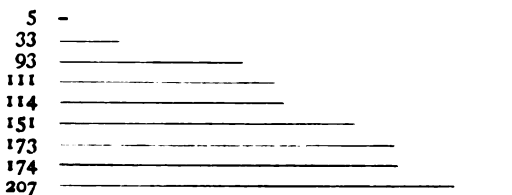
The percentage chart above shows most of the specimens to have a low iodine content in accordance with expectation in a gland containing fibrous tissue. The few specimens showing higher iodine percentage are to be explained by the fact that the fibrous tissue shuts off the secreting cells from the normal supply of blood; the epithelium continues to store iodine in the vesicle till it atrophies from lack of proper blood-supply and leaves a vesicle containing a high iodine-containing colloid, but which is not accessible to the blood-stream for utilization.

The total iodine in the gland is low, as would be expected in a fibrotic gland.

HISTOLOGICAL THYROID: FIBROSIS MARKED.

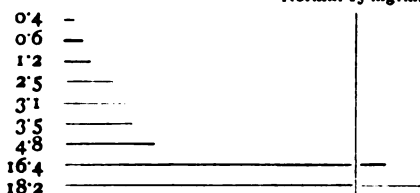
A. Mgrm. Iodine in 100 grm. Dried Gland.

Normal 240 mgrm.



B. Mgrm. Iodine in Whole Gland.

Normal 15 mgrm.



The above two charts establish the fact that fibrosis of the gland is definitely associated with both low total iodine and low percentage iodine; a great variability is also to be noticed.

PATHOLOGICAL THYROID.

Total 15 mgrm., B.

240 mgrm. per cent., A.

A. 33	_____	} <i>Lymphadenoid goitre.</i>
B. 0.6	_____	

Iodine, both total and percentage, abnormally low.

A. 173	_____	} <i>Abnormal colloid.</i>
B. 3.5	_____	

Colloid of abnormal microscopical appearance.

A. 105	_____	} <i>Interstitial thyroiditis.</i>
B. 5.2	_____	

Marked low total iodine and moderately low iodine percentage.

A. 144	_____	} <i>Graves's disease.</i>
B. 5.2	_____	

Marked low total iodine and moderately low iodine percentage.

A. 93	_____	} <i>Adenoma.</i>
B. 16.4	_____	

Low iodine percentage and high total indicates large storage of poor colloid. The size of the gland and the colloid are increasing.

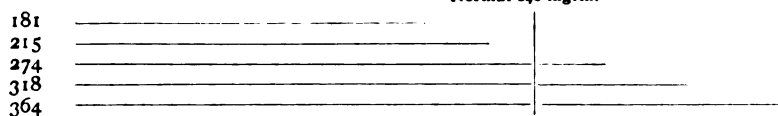
A. 111	_____	} <i>Toxic thyroid.</i>
B. 18.2	_____	

Low iodine percentage but higher total iodine agrees well with activity of epithelium, absorption of colloid and probable recent enlargement of the gland. The store of iodine and colloid is decreasing by being utilized.

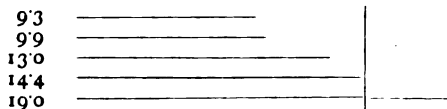
HISTOLOGICAL: ARTERIOSCLEROSIS.

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

Normal 240 mgrm.

B. *Mgrm. Iodine in Whole Gland.*

Normal 15 mgrm.

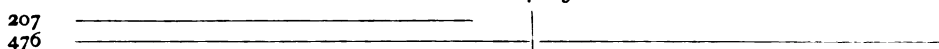


Not very abnormal iodine content in this condition.

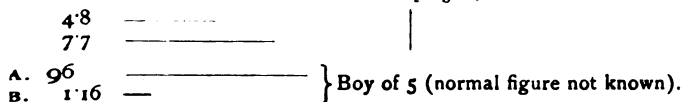
THYROID INDIFFERENT PHASE.

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

Normal 240 mgrm.

B. *Mgrm. Iodine in Whole Gland.*

Normal 15 mgrm.

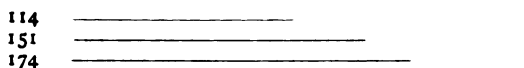


Nuclei resting, small thyroids, one of high iodine percentage; low total iodine.

THYROID SECRETORY PHASE.

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

Normal 240 mgrm.

B. *Mgrm. Iodine in Whole Gland.*

Normal 15 mgrm.

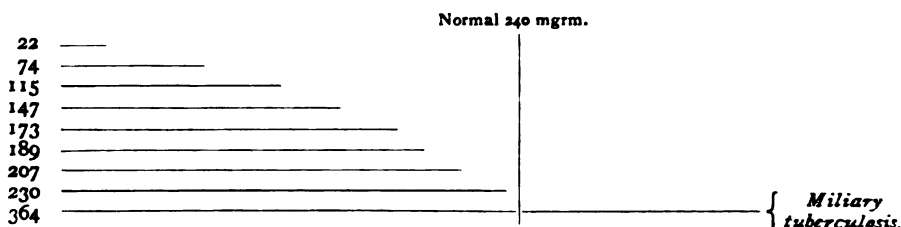


All small glands, so that activity is essential to keep up amount of secretion which is probably being actively utilized in the body in this condition.

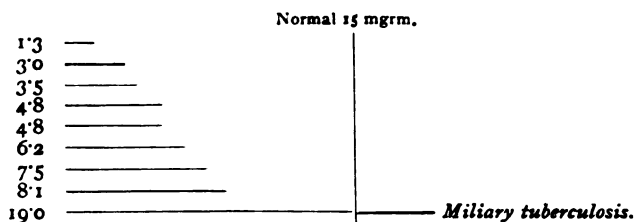
Another set of charts shows the relation to sepsis, tuberculosis and the clinical types of insanity. The tuberculosis chart shows a very low total iodine and a moderately low percentage of iodine in the dry tissue, the percentage showing extreme variation and therefore thyroid activity in this condition. The one case of miliary tuberculosis is interesting if we regard it as being parallel with pyæmia and septicæmia, that is to say, if we view miliary tuberculosis as the end-result of a tubercular septicæmia which the system has, in part at least, successfully made a strenuous effort to overcome; it shows both high percentage in the dried gland and an adequate amount of total iodine.

TUBERCULOSIS (9 cases).

A. Mgrm. Iodine in 100 grm. Dried Gland.



B. Mgrm. Iodine in Whole Gland.



The variation is important and shows the activity of the thyroid in tuberculosis.

SEPSIS (14 cases).

A. Mgrm. Iodine in 100 grm. Dried Gland.

Normal 240 mgrm.

33	— Gastric ulcer.	
70	— Pancreatitis.	
93	— Typhoid.	
116	— Gastritis, septicæmia.	
135	— Colitis, peritonitis.	
144	— Lobar pneumonia.	
149	— Burns.	
172	— Gastro-enteritis.	
181	— Lobar pneumonia.	
182	— Typhoid.	
277	—	— Lobar pneumonia.
294	—	— Lobar pneumonia.
318	—	— Lobar pneumonia.
458	—	Goitre, septicæmia.

B. Mgrm. Iodine in Whole Gland.

Normal 15 mgrm.

35	— Gastric ulcer.	
49	— Colitis, peritonitis.	
52	— Lobar pneumonia.	
51	— Typhoid.	
91	— Burns.	
107	— Pancreatitis.	
130	— Lobar pneumonia.	
149	— Gastritis, septicæmia.	
152	— Lobar pneumonia.	
163	— Gastro-enteritis.	
164	— Lobar pneumonia.	
194	—	— Lobar pneumonia.
210	—	— Typhoid.
525	—	Goitre, septicæmia.

The extreme variation which exists here shows the very marked relation between thyroid activity and septic processes.

GENERAL PARALYSIS (39 cases).

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

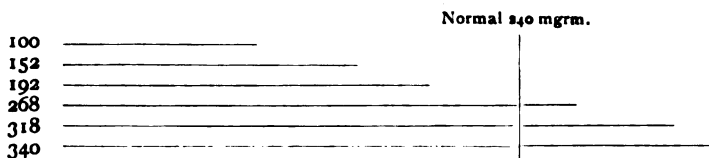
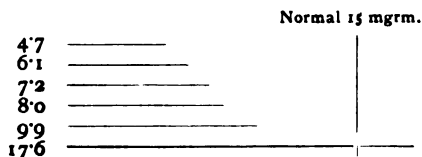
Normal 240 mgrm.					
8	126	167	179	227	307
32	134	168	181	233	327
105	140	174	195	243	339
108	151	175	217	274	448
113	152	176	222	282	476
114	164	178	226	284	485

B. *Mgrm. Iodine in Whole Gland.*

Normal 15 mgrm.				
0.4	5.2	8.5	13.3	22.5
1.2	5.5	9.2	13.3	24.0
1.2	6.8	10.0	14.4	24.5
2.5	7.0	10.3	15.0	26.2
3.0	7.5	10.4	16.4	27.0
3.1	7.7	10.5	18.4	38.4
4.0	7.7	11.6	20.3	50.6
4.0	8.3	13.0	20.4	

The great variation in the iodine in this group of patients shows that the thyroid gland is markedly affected by processes causing or associated with general paralysis. Charts can readily be constructed from these data.

MANIA.

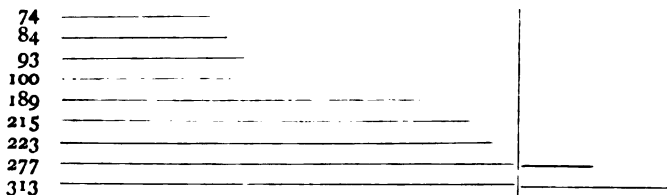
A. *Mgrm. Iodine in 100 grm. Dried Gland.*B. *Mgrm. Iodine in Whole Gland.*

Variability of both percentage iodine and total iodine indicates considerable changes of the thyroid in this condition.

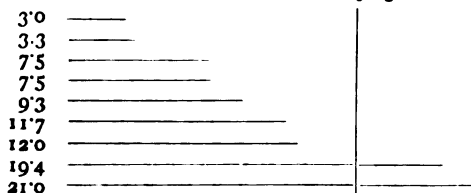
MELANCHOLIA.

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

Normal 240 mgrm.

B. *Mgrm. Iodine in Whole Gland.*

Normal 15 mgrm.

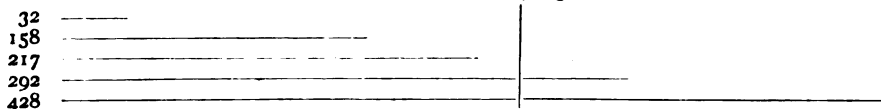


As in mania the variation indicates thyroid changes in this condition.

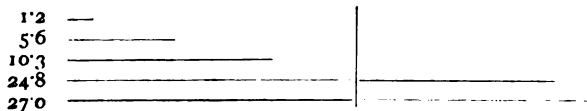
EPILEPSY (5 cases).

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

Normal 240 mgrm.

B. *Mgrm. Iodine in Whole Gland.*

Normal 15 mgrm.

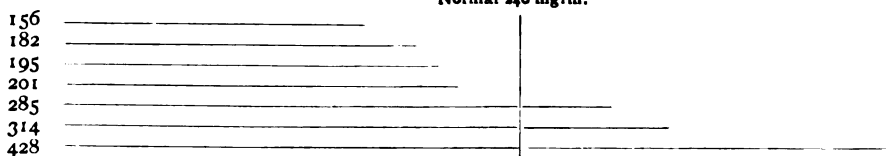


Great variation indicates that changes are present in the thyroid in this condition.

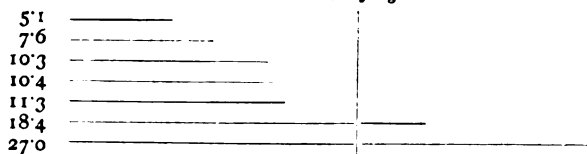
IDIOCY AND IMBECILITY (7 cases).

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

Normal 240 mgrm.

B. *Mgrm. Iodine in Whole Gland.*

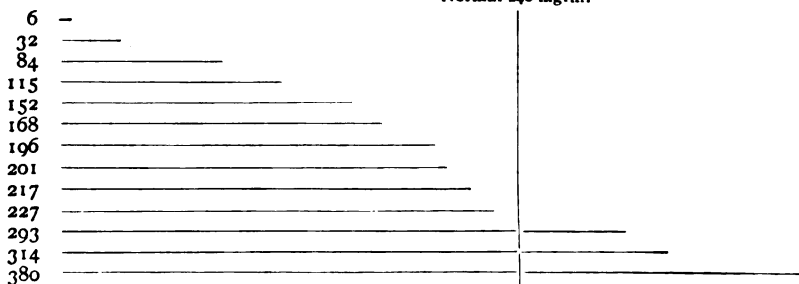
Normal 15 mgrm.



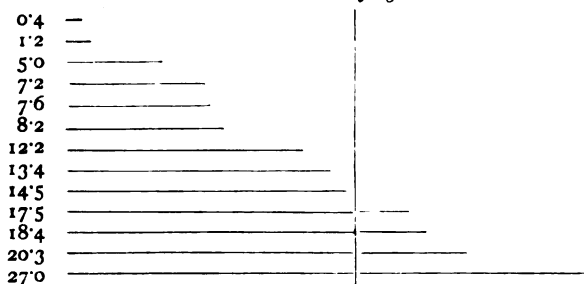
DEMENTIA (13 cases).

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

Normal 240 mgrm.

B. *Mgrm. Iodine in Whole Gland.*

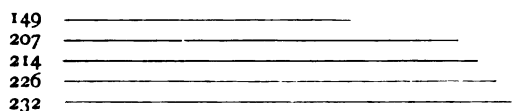
Normal 15 mgrm.



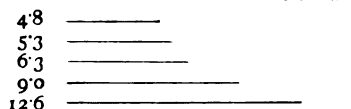
This group includes several cases of general paralysis and shows great variation in the iodine.

PARANOIA (5 cases)**A. Mgrm. Iodine in 100 grm. Dried Gland.**

Normal 240 mgrm.

**B. Mgrm. Iodine in Whole Gland.**

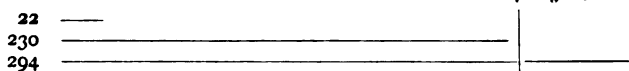
Normal 15 mgrm.



Low total iodine, but normal percentage of iodine in the dry gland.

CONFUSIONAL INSANITY (3 cases).**A. Mgrm. Iodine in 100 grm. Dried Gland.**

Normal 240 mgrm.

**B. Mgrm. Iodine in Whole Gland.**

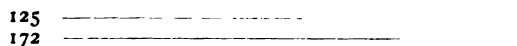
Normal 15 mgrm.



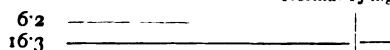
Thyroid disturbance indicated by the variation.

POST-ENCEPHALITIS LETHARGICA (2 cases).**A. Mgrm. Iodine in 100 grm. Dried Gland.**

Normal 240 mgrm.

**B. Mgrm. Iodine in Whole Gland.**

Normal 15 mgrm.



? NORMAL (4 cases).

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

		Normal 240 mgrm.	
101	_____		Motor accident.
114	_____		
159	_____		Poisoning "by lysol.

B. *Mgrm. Iodine in Whole Gland.*

		Normal 15 mgrm.	
8.5	_____		Poisoning by lysol.
8.7	_____		Motor accident.
22.0	_____		Motor accident.
A. 96	_____		
B. 1.16	_____		Boy æt. 5; motor accident.

MYXŒDEMA (1 case).

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

		Normal 240 mgrm.	
5	-		|

B. *Mgrm. Iodine in Whole Gland.*

		Normal 15 mgrm.	
0.4	-		|

A case of toxic thyroiditis, which was X-rayed, resulting in destruction of the whole of the thyroid glandular tissue.

GRAVES' DISEASE (1 case).

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

		Normal 240 mgrm.	
13.9	_____		Right lobe.
14.7	_____		Left "

B. *Mgrm. Iodine in Whole Gland.*

		Normal 15 mgrm.	
5.2	_____		|

The low total iodine in the gland is evident; the percentage is also low.

The patient had previously had the greater part of the left lobe removed by operation.

GOITRE (3 cases).

A. *Mgrm. Iodine in 100 grm. Dried Gland.*

Normal 240 mgrm.

111

193

458

B. *Mgrm. Iodine in Whole Gland.*

Normal 15 mgrm.

18.0

32.8

52.5

Indicates colloid storage with little absorption.

The above results, indicating the amount of iodine in the thyroid of mental hospital patient, show (1) a distinctly low average iodine content and (2) a marked variability in the amount of iodine in the whole gland, and also (3) a marked variability of iodine content of the dried tissue. The groupings above show only one aspect of the patient's condition; other factors, such as age, are omitted as separate groupings on account of space. It seems probable that by extension of the work we shall arrive at a definite cause underlying these results, and also be able to correlate thyroid change with some aspects of mental disease. The present work tends to show a relation on the one hand of septic processes to thyroid change (see chart showing cases of pneumonia), and, on the other hand, a relation between changes in the thyroid and mental disorder.

Two cases may be quoted.

F. E—, an apparently normal individual, developed a toxic thyroiditis, which was X-rayed, resulting in total destruction of thyroid tissue; she developed mental symptoms, and when admitted into the hospital had definite myxœdema, and showed emotional deterioration with auditory hallucinations and impulsive attacks; she had a very low basal metabolic rate—59.2 *per cent.* of the normal—which on treatment with thyroid gland by the mouth was raised to 78.5 *per cent.*

The patient improved considerably by treatment with the thyroid and coincidentally developed a temperature and showed other reactions to chronic septic foci in the nasal sinuses and elsewhere, which Dr. Graves demonstrated by X-ray evidence to have been present for some time.

Cessation of thyroid treatment caused the basal metabolic rate to return to the original low figure of 59.2 *per cent.* of the normal. Chemical examination of the thyroid at autopsy showed almost complete absence of iodine in the gland, which consists histologically almost entirely of fibrous tissue.

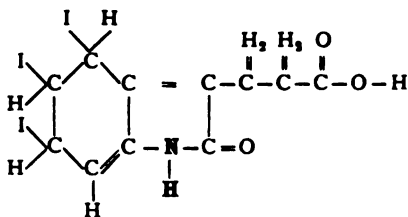
N. G—, a case of dementia præcox, had the abnormally low basal metabolic rate of 19, *i.e.*, 49.5 *per cent.* of the normal, and, it may therefore be inferred, a very inadequate supply of thyroid hormone. The interesting correlation is the fact that the patient showed on more than one occasion a bacteriæmia of *B. cloacæ*—an organism of the *coli* group also present in the fæces. Without assuming too much as to the causal factors in this case, it is interesting to compare with the published experiments of feeding pigeons on polished rice, *i.e.*, vitamin-free, which showed progressive hyperplasia of the thyroid with absorption

of colloid followed by epithelial desquamation and atrophy. They "died from invasion of the blood by micro-organisms of the *coli* group which originally inhabited their intestines as harmless saprophytes."

Sajous believes that thyroid secretion is identical with the little known but demonstrable substance Wright's opsonin.

Dr. Rollier bases his prognosis of the treatment of tubercular bones and joints upon the clinical demonstration of the thyroid: "When I feel a good thyroid I give a good prognosis."

One fact of great importance is the disappearance of the myxœdematous mucoid infiltration of the tissues which follows the administration of thyroid, and lends support to the idea that the thyroid catalyses the destruction of waste tissue products and amine compounds. That thyroxin can combine with amino-compounds by virtue of its imino grouping—



has been shown, and if this reaction is prevented by acetylation of the group, the compound at once loses its characteristic physiological properties for mammals although still active in tadpole metamorphosis.

The changes which are known to occur in the gland at puberty marriage, pregnancy and the menopause are especially interesting because of the slight but distinct change of disposition which marks this disturbance of endocrine balance.

It is clear from the foregoing that the thyroid is of great importance in combating infections, although it may need co-operative action of other endocrine products—probably those of the adrenal cortex.

The work is being continued together with the determination of the fat cholesterol lipid content of the suprarenal gland.

My best thanks are due to Sir Frederick Mott for suggesting this work and for his valuable assistance and advice.

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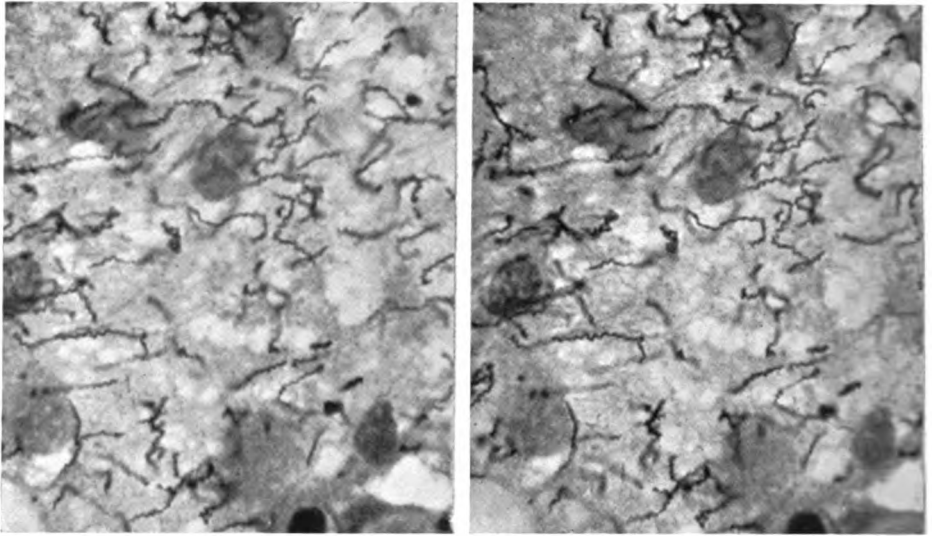


FIG. 1.—Stereoscopic microphotograph; oil-immersion 2 mm. compensating ocular No. 12 \times bellows length 20 cm. General paralysis, section cerebral cortex, Jahnke's stain—many *Spirocheta pallida*.

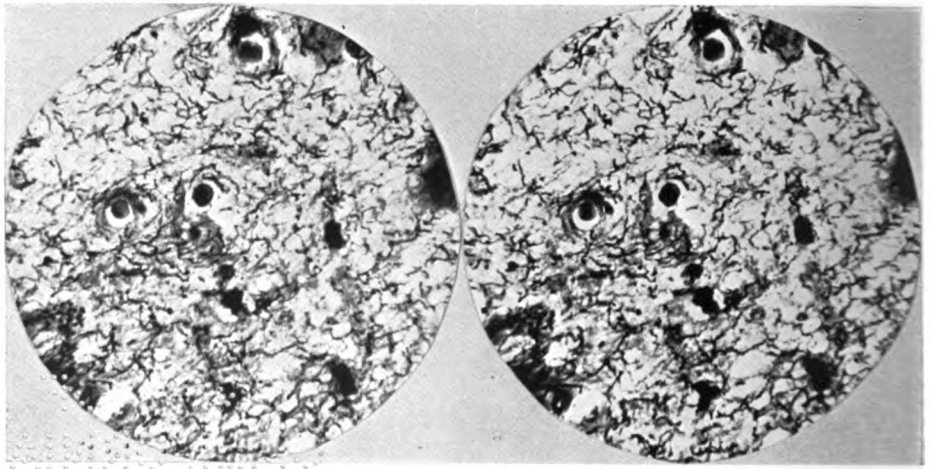


FIG. 2.—Stereoscopic microphotograph; oil-immersion 2 mm. compensating ocular No. 6 \times bellows length 20 cm. General paralysis, section gyrus rectus, Jahnke's stain. Swarm of *Spirocheta pallida*, some fragmenting and some only in partial focus.

To illustrate article by Dr. R. M. CLARK.

Adlard & Son & West Newman, Ltd.

Clinical Notes and Cases.

Methods of Photographing the Spirochæta pallida in General Paralysis. By R. M. CLARK, M.B., Medical Superintendent, County Mental Hospital, Whittingham, Preston.

THE great improvement in the staining of spirochætes devised by Jahnelt and others so simplified their photography that ordinary flat-print microphotographs of these organisms became familiar to most of us years ago.

Good microphotographs, demonstrating spirochætes in general paralysis, were published by Jahnelt (¹) and by Warthin (²), but a limit to the excellence of flat-print microphotographs of spirochætes was apparently reached and in consequence their popularity declined, and workers turned their attention to lantern-slides, transparencies and colour photographs.

Colour photographs of microscopic specimens have established their usefulness both as records and for teaching purposes. Quite satisfactory colour transparencies of spirochætes are produced by the Lumière method. One arranges the microphotographic bench in the usual way, using apochromatic lenses, a 100 c.p. pointolite lamp, the special Lumière colour-screen and autochrome plates. Correct exposure is all-important, and this is got either by using one of the automatic calculators—the posograph is the one in use here—or the correct exposure for special rapid antiscreen plates is determined and sixty times this exposure is given for the autochromes. For the rest the directions sent out with the plates should be followed. Sections of brain cortex showing spirochætes, stained by Jahnelt's method, photographed in this way give exceptionally bright and clear colour transparencies—the chocolate-black stained spirochætes stand out beautifully against the clear uranium yellow stained background of brain-tissue.

Before leaving flat prints of spirochætes altogether, mention should be made of those taken by the "Davon" supermicroscope. I have no experience whatever of this instrument, but think the prints of spirochætes taken by this method are in advance of those taken by the ordinary microscope.

More recently interest has been aroused by methods which have perfected and simplified the production of stereoscopic microphotographs—those shown are taken by the new method devised by Pfeiffer von Wellheim and elaborated by Erwin Christeller, M.D., Pathological Institute of the Rudolph Virchow-Krankenhaus,

Berlin. This method is especially useful with high-power dry and immersion systems, and is the best for photographing spirochætes.

Transparencies, either plain or coloured, give even better results than the prints here reproduced. A true stereoscopic effect of depth is got and the record is without a rival, for no other photographic method gives the same depth, relief and perspective, with the result that better information of form and structure is got.

The displacement necessary for stereoscopic effect is got, not by moving the object or objective, but by shifting the illumination cone by turning up and down the reflecting mirror of the microscope. No difficulty is likely to be encountered, and first attempts should give satisfactory results.

These are the first stereoscopic microphotographs of spirochætes taken here, and the sections photographed were neither specially cut nor specially stained.

All the work connected with the production of these photographs, from and including the selection of the tissues for section to the finished photographs, has been done by Mr. A. H. Fann, Chief Laboratory Assistant.

(¹) *Ztschr. f. d. ges. neurol. u. Psychiat.*, lxxiii, 1921, p. 310.—(²) *Arch. of Derm. and Syph.*, October, 1923.

Further Experience of Luminal in the Treatment of Epilepsy.

By GERALD W. T. H. FLEMING, M.R.C.S., L.R.C.P., D.P.M.,
Deputy Medical Superintendent, Sunderland Mental Hospital.

FOR many years the treatment of epilepsy has been a grave problem, and it may truthfully be said that, until the pathology of the so-called idiopathic cases has been worked out, we are a long way from treating this condition in anything like a satisfactory manner.

In epilepsy we have to consider both the actual seizures and the manifestations of mental impairment. Our present concern is solely with the seizures, and the possibility of controlling them, or abolishing them altogether. During the past few years almost every conceivable remedy has been tried. The changes have been rung on bromides, borax, zinc lactate, digitalis, belladonna, hyoscyamus, chloral, extracts of the thyroid, thymus and pituitary glands, a salt-free diet, protein-free diet and even starvation. More recently the surgeons have come along and extirpated the adrenal (or a part of it) on the left side without giving relief. The psychoanalysts have analysed epileptic patients, but even Pierce-Clark (¹)

himself says, "Psychoanalysis is of little use in essential or idiopathic epilepsy."

Despite all this variety of treatment, the patient, in the majority of cases, still had the same number of fits. There may have been some temporary improvement, but this soon disappeared. In many cases the mere fact of stopping all treatment led to a cessation of fits for a time, and this has always to be carefully reckoned with in introducing any change of treatment.

In May, 1912, Emanuel⁽²⁾ published a paper dealing with the use of luminal in nervous and mental diseases, including epilepsy.

Since then a number of papers have been written on the use of luminal, but mostly in German (see references 3-26 for most of the early papers).

Wender⁽³⁰⁾, of New York, found in 11 cases a decrease in the number of fits by giving 1½ gr. each evening. The mental condition was improved and the patients became more cheerful.

Conos⁽³¹⁾, of Athens, in 13 cases found improvement in all, especially in the more severe cases. One case having several seizures daily had had none in 6 months at the time Conos wrote.

Grinker⁽³²⁾, in U.S.A., in 200 cases found the same: that in the more severe cases the improvement was most marked.

Volding⁽³³⁾, in 114 cases, found improvement in all.

Fox⁽³⁴⁾, in 16 cases of ordinary epilepsy in young adults, found marked reduction in the number of fits and an increase in weight. One showed some slurring of speech, and two became drowsy.

Stanton⁽³⁵⁾, of Michigan, found great improvement in 100 cases.

Murphy⁽³⁶⁾, in 63 cases, gave both sodium bromide and luminal. He found some quite cured, others showed a much more gradual improvement, which seemed to be permanent. There were few cases which did not show some improvement.

Divry⁽³⁷⁾, in 300 cases, of which more than 70 had been under treatment for six to seven years with luminal, found that *grand-mal* was often abolished, or at any rate very much improved. The attacks of *petit-mal* were not so much affected. In those cases with both *grand-mal* and *petit-mal*, the attacks of *grand-mal* were checked, but those of *petit-mal* persisted. Some cases of *petit-mal* were much benefited.

Reed⁽³⁸⁾, in 15 cases, combined ductless gland therapy with luminal and obtained good results.

Willemsse⁽³⁹⁾ gave sodium borate, boracic acid and luminal in one powder and reported good results. In one case of *petit-mal* he obtained complete relief for five months.

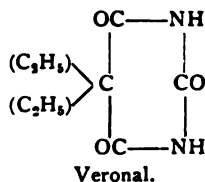
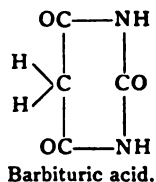
Grossmann⁽⁴⁰⁾, in 25 cases obtained very good results. He used sodium luminal. He found great mental improvement.

Golla⁽⁴¹⁾ found that luminal was superior to bromides in every way and much better tolerated.

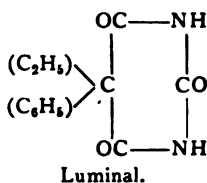
Lewis⁽⁴²⁾ does not entirely agree with the marvellous results obtained by some authors. He treated 40 cases and found 80 *per cent.* showed diminution in fit-incidence. The mental and physical improvement was only to be expected as a result of the reduction in the number of fits. Epilepsy is not cured by luminal, but many epileptics are benefited by it, is this author's conclusion.

Luminal or gardenal, as it is sometimes called, is a member of the barbituric acid group or cyclic ureides. These ureides are formed by the combination of malonic acid and urea, giving rise to malonyl urea or barbituric acid.

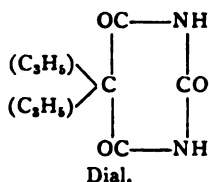
Veronal or barbitone is diethylbarbituric acid :



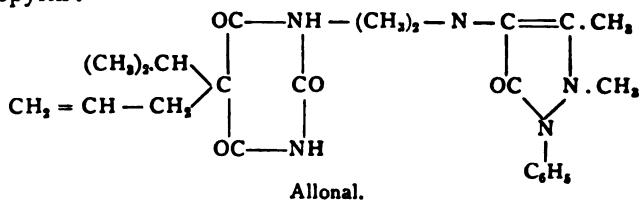
When one of the ethyl groups of veronal is displaced by a phenyl group, we get phenylethylbarbituric acid, or luminal :



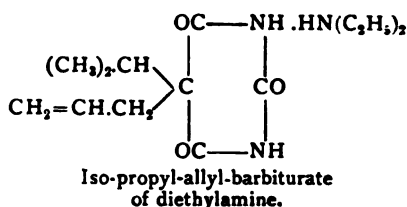
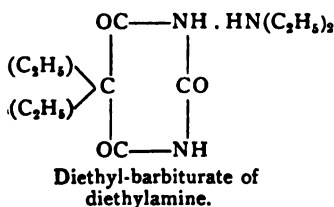
It is interesting, in passing, to note that luminal is closely allied to three other drugs, all with a similar action—dial, allonal and somnifene. Dial is diallylbarbituric acid :



Allonal is a combination of allyl-iso-propylbarbituric acid and amidopyrin :



Somnifene is a mixture of the diethylamine salts of diethylbarbituric acid and allyl-iso-propylbarbituric acid :



Dial, which was introduced about January, 1914 (²⁷), is a most useful hypnotic, being without any evil after-effects.

Allonal has been used with very satisfactory results as a sedative, and in the few cases in which I have used it there have been no untoward results. Somnifene has been used on the continent in the treatment of some of the schizophrenias (^{41, 42}). It is not at present on the English market. The sleep with somnifene is very profound, and may be carried on for days at a time. It is my intention to try both allonal and somnifene in epilepsy.

Luminal is almost insoluble in water, but is soluble in dilute alkaline solutions, forming an alkaline salt, and in alcohol, ether and chloroform. Luminal sodium, the trade name of the sodium salt of luminal, is soluble in water, and is often used instead. When hypodermic medication is resorted to a 20 *per cent.* solution of luminal sodium is used, 2-3 c.c. being injected.

The pharmacology of luminal was thoroughly worked out by Impens (²⁸). He found in animals that the sleep induced with small doses is not very deep, but with larger doses is very profound. Toxic doses paralyse respiration while the heart is still active. The drug is excreted unchanged in the urine, but even after long-continued administration the healthy kidney is not affected. Impens says that the tendency to twitching seen in some animals with veronal is absent with luminal.

In man luminal may be given by the mouth, by the rectum, subcutaneously, or intrathecally. The usual method is by the mouth. Subcutaneously the results are said not to be satisfactory. Luminal is about twice as potent as veronal, and is more powerful than either chloral or trional. It acts as a sedative and hypnotic in all forms of excitement and sleeplessness. A dose of 3-6 gr. induces sleep in non-excited patients. In excited patients larger doses up to 10 gr. are sometimes necessary. Still larger (²⁹) doses, up to 12 gr. have been given with the object of producing prolonged sleep, much as somnifene is used, but there is a risk.

In its earlier days luminal was chiefly used in all states of excitement and insomnia. To-day it is mostly used in epilepsy. The sleep lasts longer than after hyoscine. In some cases of extreme restlessness it has been given combined with hyoscine. The onset of sleep is usually within one hour, the sleep is sound and lasts up to 12 hours.

Luminal is well tolerated by the stomach and intestines, and has no injurious action on the healthy kidney.

Before commencing the treatment of epilepsy with luminal the bowels must be thoroughly evacuated. During treatment it is essential to keep the bowels free by a daily evacuation. One

and a half grains of luminal are given night and morning on an empty stomach, and best with some hot drink. As a rule this dosage is continued indefinitely, but in some cases it requires modifying, either more or less being given.

If toxic symptoms appear, it may be necessary to discontinue the drug for a while, or decrease the dose. In some cases patients have been given 10 gr. sodium bromide *t.d.s.* for 10 to 14 days before the treatment commenced; in other cases potassium bromide 10 gr. *t.d.s.* has been given with the luminal.

In the majority of 20 cases after nearly three years' experience we have found that there is a marked diminution in the number of fits at once. In exceptional cases there has been an increase to begin with. In other cases there has been an outburst of excitement, which has lasted 10 to 14 days and then calmed down. In practically all cases there was a marked improvement in the mental condition. The patients are brighter and more cheerful.

The results in one case, an epileptic for 20 years, are particularly instructive.

M. R—, female, æt. 28. Fits since 8 years of age. Her mother was alcoholic and immoral. M. R— had been educated in an industrial school, and was of poor mentality. Her mental age was not ascertained on admission. She had one sister in a reformatory, and three brothers in an industrial school. From 8½ years to 12½ she had no fits. A curious feature of her early fits was that she was said never to have fallen down, but always to have revolved slowly after a brief period of rigidity. She had a considerable amount of dementia when treatment was begun. Prior to the luminal treatment she had been having an average of 36 fits per lunar month. During the first six months on luminal she averaged 24, and her mental condition showed considerable improvement. From November 20 to December 10, 1922, we had no luminal, and during that time she had fits at the rate of 340 a month—an average of 12 a day. On luminal again being exhibited from December 10, 1922, until December 10, 1923, she had an average of 66 a month. From December 10, 1923, until October, 1924, she had an average of 7 per month, but her mental condition was steadily deteriorating. She was "wet and dirty," constantly chewing her clothes, and generally in a very degraded condition. It must be remembered that she showed a considerable amount of dementia in the first place. In October, 1924, she had her last fit. From that date until her death in February, 1925, she had no fits. During this five months she was suffering from a chronic tubercular peritonitis. She slowly lost ground and died from general tuberculosis.

— In another case, a female, æt. 29, who had been epileptic for 18 years, with hallucinations and a typical epileptic reaction type, the fits ceased altogether on luminal. She had been having six a month prior to luminal treatment. After six months' freedom from fits she was discharged on trial, and has been out for six months. She has had a number of fits whilst out, her relatives unfortunately not being able to afford a continuous supply of luminal.

A third most interesting case was that of a boy, æt. 20, who had been epileptic for two years. As he was a case of pituitary epilepsy,

with Frohlich's syndrome, we were not too optimistic about being able to control his fits. After two years' treatment the number of fits remains the same.

With regard to the toxic symptoms of luminal, Ruggles⁽⁴⁰⁾ reports a case that showed slurring of speech, and a flattening of the lines of expression of the face, together with inco-ordination of both arms and legs. There was difficulty in standing alone, a slow unsteady gait and labial tremor. There was no interference with the reflexes. The luminal was stopped and all symptoms disappeared in three weeks. Other writers report urticaria, vertigo, albuminuria, and a scarlatiniform rash.

Our experience of toxic symptoms is confined to two cases. The first case, a male, soon after being put on luminal, became stuporose and had to be put to bed and the luminal stopped. Brisk purgation and a few days in bed brought him round. When put on luminal again he showed no further toxic symptoms. The other case, a woman, developed a scarlet rash on her chest and arms, which disappeared in a few days without stopping the luminal.

In conclusion I should like to emphasize—

1. Luminal does not cure epilepsy; it merely controls the seizures.
2. The bowels require careful attention throughout treatment.
3. The diet must be easily digestible and personal habits must be regular and simple.
4. Occupational therapy of an interesting nature is most helpful. Work of the ward-cleaning, charwoman type is worse than useless. Occupation to be of any use must be of a constructive type, where the epileptic—who feels his handicap in life very keenly—realizes that he is useful, and making something which is useful to his fellow-creatures. He sees the results of his labours.
5. That epilepsy is not a disease for "group" treatment. The patient requires careful individual attention, the dose of luminal or luminal combined with bromide, etc., being adjusted to suit the individual's own requirements, and the occupational therapy carefully worked out.
6. It is just as essential that focal infections be carefully attended to. It is little use giving luminal if there are carious teeth, septic tonsils, chronic sinuses, or a toxic alimentary canal or genito-urinary tract.

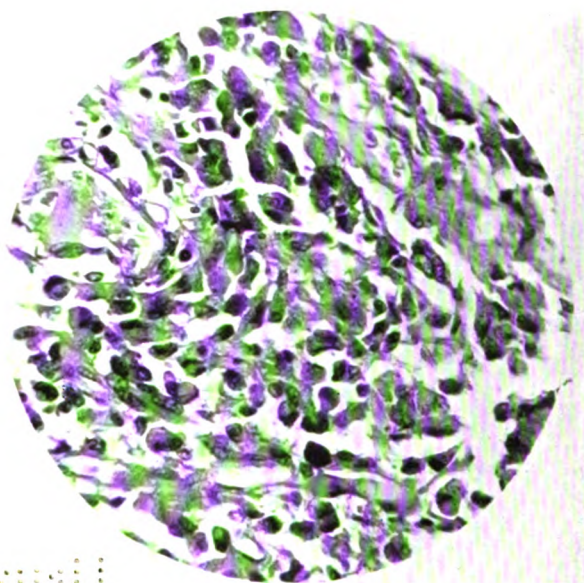
I am very much indebted to Dr. M. A. Archdale for permission to make use of these cases.

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A Case of Cerebral Tumour. By WM. LEONARD FORSYTH, M.B., Ch.B., Major I.M.S., Pathologist, East Sussex County Mental Hospital, Hellingly.

A. J. A.—was admitted to this hospital under Dr. J. Greene Nolan on March 4, 1925, suffering from what appeared to be confusional insanity.

Prominent in his case were periods of excitement with auditory and visual hallucinations. His pupils were equal and reacted to light, and a general survey of his condition revealed nothing unusual in this tentative diagnosis.

He was confined to bed, and on May 1, 1925, he developed a temperature of an irregular and low type, his pulse fluctuating between 104 and 130. The confusion deepened to stupor, which continued to his death on May 22, 1925.

Cerebro-spinal fluid taken on May 4, 1925, was clear and colourless, and showed a normal pressure, a normal protein content, a cell-count under 5 per c.mm., and an absence of pathogenic micro-organisms. Blood-cultures were sterile. A white blood-count numbered 6,000 per c.mm. A Widal was done against the *enterica* group with negative result.

The discs were examined by Dr. E. V. Oulton, ophthalmic surgeon, on May 5, 1925, with the report that the left disc showed blurring and hæmorrhages. He suggested the presence of tumour in the left occipital lobe.

Post-mortem examination of brain.—The dura and leptomeninges are normal and there is no excess of fluid. The right hemi-cranium is healthy. Section of the left shows a large area of rather recent hæmorrhage into the substance of the white matter of the left occipital lobe. This area is confined to the white matter of the lobe, and does not communicate with either the posterior horn or the descending horn of the lateral ventricle, or the exterior. The actual hæmorrhage is surrounded by the merest rind of pink white brain substance, suggesting rather a localized hæmorrhage than a tumour; the posterior cerebral artery carefully examined shows no apparent weak spot in the direction of aneurysm or rupture.

Sections were cut and establish the diagnosis of tumour in the left occipital lobe. This tumour is a perivascular endothelioma and is malignant. It is highly vascular, as most of them are; the capillaries are of recent formation and supported only by endothelium. The microphotograph shows its histology.

The interesting point of this case is the importance of ophthalmoscopic examination in cases showing the features of confusional insanity.

I am indebted to the Medical Superintendent for permission to publish the case.

A Case of Unilateral Hydrocephalus. By FRANK NORONHA, M.B., C.M., D.P.M., Superintendent, The Asylum, Bangalore, Mysore State, India.

A CASE of hydrocephalus, in many respects similar to the one described by Dr. Fred Wilson in the *Journal of Mental Science* for April, 1925, was also observed in the Asylum at Bangalore in December, 1924.

H—, a Hindu, æt. 30, was admitted into the asylum on May 11, 1913. Mentally he was deficient, but could understand a few simple questions and carry out instructions. He had no idea of place or time. His ideas in other respects were childish, and his speech was slow, interrupted and slurring. He was subject to periodical epileptic fits, followed by violent mental excitement. In the intervals between the attacks he was quiet, well-behaved, and diligent at garden work.

Physically he was well developed, except that his right arm and hand, the lower part of the right half of the face and the right half of the tongue were atrophied and paralysed. The lower limbs showed no abnormality. He took his food and did other work with his left hand.

On December 6, 1924, he died from chronic dysentery. On *post-mortem* examination it was found that the dura mater was thickened, and on incision an unusual quantity of serous fluid escaped. The brain was generally under-developed, the convolutions not well marked and the sulci were shallow. The right hemisphere was of normal consistence and the several structures forming it were well-defined. The left hemisphere was saccular and contained milky white fluid. The whole of the cortex formed the wall of the sac, with the left crus cerebri standing out prominently in the hollow of the cavity, not unlike the trunk of a tree.

The lungs were tuberculous. The mucous membrane of the large intestine was ulcerated, particularly that of the rectum, and the submucous tissue was considerably thickened. The right kidney showed tubercular nodules.

It is remarkable that, unlike Dr. Wilson's case, this patient showed no atrophy and paralysis of right leg, and could walk well. Tuberculosis and dysentery were the terminal stages in both the cases. This case cannot altogether be one of hemiatrophy, for the cortex on the affected side was fairly firm in consistence, and on incising it and evacuating the contents of the sac it collapsed partly, like a half-inflated football. The convolutions, though not well marked, were easily distinguishable.

The history of the patient prior to his admission was very meagre, but during the time he was in asylum his condition was not progressive.

There was complete cessation of fits during the last days of his life, when he was in the infirmary for dysentery.

The brain is preserved in the Museum of the Medical College at Bangalore.

Medico-Legal Notes.

AN interesting experiment in improved criminal procedure is now being tried in Greene County, State of New York, U.S.A. Information concerning this has been kindly supplied by Mr. Charles C. Coffin, the district attorney (an office corresponding to that of our prosecuting solicitor).

The scheme applies to all cases which are not disposed of summarily. The accused person, having been brought before a police magistrate, is remanded to sessions. While he is awaiting trial (not necessarily in custody) a specially experienced and qualified

psychiatrist is called in, and a full physical and mental examination is made. The latter examination appears to be of an exhaustive character. We are informed that "not only is there a diagnosis of the presence or absence of insanity and mental defect to be made, but the whole field of behaviour peculiarities is to be investigated, mental conflicts are to be located, and emotional trends to be diagnosed, in order that the conduct of the offender may be understood and the proper way of dealing with it evolved." A psychological examination is conducted which includes "several intelligence scales" (we presume this to mean that several alternative scales are in use), "a number of performance tests, and some tests of special abilities and disabilities." A psychiatric examination follows, which includes "the probing of the emotional life in the light of modern psychology, and for the purpose of identifying the various mechanisms which were at the root of the offender's conduct; so that a complete personality study of the individual is made." The physical examination is also of a searching character, and includes a Wassermann test. More stress is laid in the United States upon the importance of syphilitic infection in the production of delinquency than we should be prepared to allow it in this country.

The psychiatrist is expected to formulate recommendations "which will give the offender the best opportunity to arrive at an understanding of his duty to society, and the best chance for him to refrain from further crime." And the psychiatrist must be prepared to go into the witness-box and "testify, in an impartial and exhaustive fashion, as to the whole personality and mental life of the offender." The authors of the scheme claim, and rightly, that its adoption would mean "in the end, less expense to the community, and less chance of further wrong-doing; if the weakness is incurable, then the offender must be protected, in his own interests as well as in those of society."

It reads very well. And such a scheme is, without doubt, on the right lines. But we may venture to feel a little uncertain as to how far, in practice, the scheme will be carried out. It is of a very elaborate character. The examinations will take a long time, and, if any large number of cases is dealt with, will require a large staff. Further, let us suppose that some mental conflict has been located. To remove its influence from the patient, the conflict will have to be treated. We have no information as to how, or by whom, this treatment is to be carried out. Of course, even the recognition of the existence and influence of such a conflict is a great help to the correct understanding of the case, and is far more than a court, as a rule, has before it.

We have reports of nine cases which were recently dealt with

under this scheme. The subjects were charged, in most cases, with the offences of larceny and burglary; in one case the charge was that of rape. This last case, as also one of the others, was found to be mentally defective. These two were sent to an institution for defectives, under a statute which is, in material particulars, much the same as that in force in this country. One of the remaining cases was sent to a reformatory. The other six were sentenced to indefinite periods of detention in Elmira Reformatory (corresponding, more or less, to a Borstal institution), but the operation of the sentence was, in each case, suspended, the offender being put on probation, and being told that if he behaved well, he would not be called upon to undergo his sentence. The physical treatment advised by the examining physician was also made a condition of the probation. In most cases this suggested treatment consisted of attention to tonsils and teeth; in one case vaccination was advised, the subject being unprotected in this way. It would be interesting to learn whether neglect of this last condition would have involved detention. The medical reports were full and precise, and the suggestions for treatment and disposal were certainly more extensive than are generally made by those who conduct similar examinations for British courts. Mention of mental conflicts, and of certain other mental abnormalities, was made in some of the reports. But of these points the court appeared to have taken little notice, except for some pious advice. It seems somewhat futile to set up an elaborate machinery for examination, and to neglect to make due provision for the treatment advised by the examiner. It is, however, probable that the magistrates are not yet educated in the comprehension of the full implications of modern psychological findings. This defect will be remedied in time.

Occasional Note.

Revision of the List of Recognized Training Institutions for the Mental Nursing Certificate.

At the Quarterly Meeting held in May, 1924, the Educational Committee appointed a Sub-Committee to examine the answers to a questionnaire sent out by the Registrar to certain recognized institutions, and to report thereon.

The Sub-Committee appointed for this purpose were the Chairman, the Deputy Chairman, and the Secretary of the Educational Committee, with Dr. Bedford Pierce and Dr. Menzies.

The Sub-Committee at the following November meeting reported that—

“A complete list of institutions at present recognized for the training of mental nurses and the training of those nursing mental defectives has been carefully scrutinized.

“A questionnaire has been sent to all the listed institutions about which there was any doubt, and the Sub-Committee’s recommendations appear in tabular form at the end of this report.

“One result of the inquiry has been to engender some doubt as to whether the present Regulations dealing with the recognition of institutions are completely satisfactory; among other unsatisfactory features is that there is a long delay between the application for recognition and the decision of the Educational Committee.

“As an improvement on the present procedure we recommend the appointment by the Educational Committee of a permanent Sub-Committee, authorized to recommend additions to the list of recognized institutions, and to subject the list of recognized institutions to an annual revision, reporting any action taken to the Educational Committee at its next meeting.

“The composition of this Sub-Committee might be the Registrar, the Chairman, the Deputy-Chairman and the Secretary of the Educational Committee, with at least two other members, one of whom should be competent to advise the Sub-Committee as to institutions for Mental Defectives.

“For the purpose of this report the suggested Sub-Committee will be called the Training Sub-Committee.

“The Regulations laid down by the Educational Committee on February 24, 1921, are as follows :

‘An institution can in future only be recognized for the training of mental nurses provided that—

- (i) There is a resident medical officer.
- (ii) At least 100 beds are reserved for the treatment of mental cases.
- (iii) The institution must be visited and reported on favourably by a referee appointed by the Educational Committee.
(Later changed to Registrar.)’

“It will be noticed that the rules apply only to institutions recognized for the training of mental nurses, and apparently are not applicable to institutions recognized for the training of those nursing only Mental Defectives.

“The Mental Defective needs more training and less nursing than a mental case, and it is suggested that the Regulations should read as follows :

- (1) An institution to be recognized for the training of mental nurses must have a resident medical officer, this not being a necessity for the recognition of an institution for the training of those nursing mental defectives.
- (2) Every institution before recognition must be visited and reported on by a referee or referees appointed by the Training Sub-Committee.
- (3) To terminate the recognition of an institution for training purposes, three years' notice must be given by the Registrar in the event of the institution concerned still having nurses in training."

Owing to changes in the Regulations, certain anomalies had arisen, and it was recommended not to interfere with present arrangements, but to refer the cases to the Training Sub-Committee.

It was felt that the question of the recognition of Poor-Law infirmaries could only be dealt with by the Training Sub-Committee considering each case on its merits.

The list of institutions then recognized for the training of nurses was appended and recommendations made as to their future status in this respect.

The Report was adopted, and the Training Sub-Committee was appointed and submitted its first report at the Annual Meeting held at Birmingham in July, 1925.

The list of Recognized Training Institutions for the Nursing Certificate will in future appear in the January number of the Journal.

Part II.—Reviews.

[We regret to have to hold over several reviews, including the continuation of the review of Prof. McDougall's *Outlines of Psychology*, owing to overcrowding occasioned by the publication of the proceedings at the Annual Meeting.—Eds.].

The Ninth and Tenth Annual Reports of the Board of Control for the Years 1922 and 1923 (continued from p. 570).

MENTAL DEFICIENCY.

The report for 1922 under this heading commences with a general review of the progress made under the Mental Deficiency Act of 1913. A similar sketch appeared in our review of the seventh and eighth reports, limited, however, chiefly to the years 1918–1922.

The Commissioners draw particular attention to the need for co-operation between all the various authorities dealing with mental defectives under the Act. They regret the delay in bringing into

operation the Elementary Education (Defective and Epileptic Children) Act owing to financial restrictions. This Act is now merged in Part V of the Education Act, 1921, and is compulsory.

The ascertained number of mentally defective children is 31,000, out of which only 16,000 are being dealt with in special schools. The remainder are drifting into the ordinary schools and becoming merged into the general population without being notified under the Mental Deficiency Act, and no doubt will ultimately join the submerged tenth, *i.e.*, become subject to suffering, crime, destitution, inebriety and disease, the prevention of which was the design of Parliament. It seems incredible that the local education authorities have no legal obligation to notify the proper authorities on defectives leaving school at 14, but we think that a self-respecting education authority should need no compulsion in this matter, knowing as they must know that such neglect of the public welfare recoils ultimately on the head of the community at large, and helps to swell that vast expenditure on social wreckage so burdensome, especially at present.

The full benefit of the Mental Deficiency Act will not be felt until there is established a continuity of care from the time the defective is ascertained. This means machinery for securing the co-operation of central and local authorities in regard to education, mental deficiency, lunacy and after-care, and a further loosening of the public purse-strings, which in the end will undoubtedly result in an immense saving of national and local expenditure.

In the report for 1923 various aspects of the work of local authorities in mental deficiency matters are discussed, and valuable deductions drawn. The need for co-operation is again and again emphasized.

Ascertainment.—A review of the progress of the ascertainment of mental defectives shows that there is still a very large number for whom the Mental Deficiency Act is a dead letter. Of the 138,529 defectives, or 4·03 per 1,000 of the population, estimated by Dr. Tredgold to exist in 1906, the total number ascertained at the close of 1922 was 25,470, or 0·67 per 1,000 of the population. During 1923 nearly eleven thousand were added, bringing up the figures to 35,413, or 0·8 per 1,000. Some local authorities are very backward in this matter, and there is such a striking difference in the returns made that it is obvious that in many cases they are valueless as an evidence of the incidence of mental deficiency in the districts to which they refer.

Supervision.—The arrangements made by some local authorities for supervision of those defectives not under guardianship or institutional care cannot be said to be satisfactory. The Board recommends that women visitors should be appointed as officers of the Mental Deficiency Committees, and that whenever possible such officers should undergo a course of special training like that organized and carried out so successfully by the Central Association for Mental Welfare. Some local authorities are so neglectful in this matter as to have no visitors at all, relying entirely upon a voluntary association where there is one, or on officers of other

local authorities who may or may not be suitable persons for this purpose. Good judgment, special knowledge, sympathy and tact are the essential characteristics of a good visitor.

Occupation Centres.—The proposal to set up occupation centres for defectives who live at home when first made was the subject, on the part of many, not only of adverse criticism from a financial point of view, but of ridicule as an unjustifiable proposition emanating from wild theorists and unpracticable enthusiasts. We are glad to note with the Commissioners that such centres, although not yet fully developed, are doing excellent work. They can now be considered definitely established as an integral part of the local machinery for the care of the mental defective. Defectives only fit for institutional care because of their helplessness or disorderly and destructive habits have, by attendance at these centres, so far improved as to become controllable at home. They have been taught to use their hands usefully and behave properly, thus postponing or preventing the necessity in their cases for costly institutional treatment and promoting the economical working of the Act. All classes of defectives living at home or under guardianship can attend, and there is still scope for fresh experiment and effort, especially in regard to industrial training. Up to May, 1923, some 57 occupation centres have been opened and more are in course of formation. Both cost of establishment and working expenses are small, especially having regard to the good work they accomplish and the economy they secure.

Guardianship.—The Commissioners complain that the local authorities have made but little use of their powers under Sect. 30 of the Mental Deficiency Act in regard to "guardianship." Some defective children have no homes, others have homes which are most unsuitable for them. If suitable guardianship can be found institutional care in many cases is not called for. A wise choice of homes, of cases and of trained visitors is essential. Transfer to a certified institution is a simple matter if this eventuality arises, a variation of the order only being needed. Unfortunately the reverse process of transfer from a certified institution to guardianship is not provided for in the Act—a defect which will need attending to on the first opportunity. At present discharge and a new order is the only means by which a defective who has so far improved under institutional care as to become suitable for home life under guardianship can be thus disposed of.

Provision of Institutional Accommodation.—Though financial restrictions still operate, the Board, having regard to the urgent demands for further institutional accommodation, are now prepared to consider a limited number of schemes for colonies of not less than 400–500 beds. Smaller institutions are neither efficient nor economical. Local authorities must be willing to take cases by contract from other authorities until they require the beds for their own cases. The existing accommodation reported in 1922 was 19,262 beds; during 1923, 631 additional beds were provided, making a total of 19,893. On April 1, 1914, the total accommodation was about 3,000 beds.

Having regard to many things, and especially the suspension of operations during the war, we think a very creditable progress has been made, but until economic conditions generally are more favourable further progress will be slow. As the Commissioners very rightly point out, much more could be done in the direction of supervision and guardianship, especially when assisted by occupational centres and trained visitors—a much cheaper method of dealing with defectives than institutional care—if the local authorities would wake up to this fact. We think much assistance could be given in bringing this about if the certified institutions were made use of as preparatory schools rather than places of permanent detention. They should be administratively linked up with home care under supervision or guardianship as we have pointed out before and transfer from one to the other made easy. It would be good for the institutions concerned and lessen the objections parents have to surrendering children to their care, and supervision and guardianship would be more effectively carried out.

So far the sole cheerful note struck in these reports as regards mental deficiency has been the recording of the good work of the occupation centres—a marked contrast to the sections dealing with lunacy.

Numbers under care.—The increase during 1922 amounted to 1,976 and during 1923 to 1,856 patients. On January 1, 1924, the total number under care was 17,642 (males 8,189, females 9,453). These figures do not include cases in Metropolitan Asylums Board institutions not dealt with under the Mental Deficiency Act.

Central Association for Mental Welfare.—The usual well-deserved tribute is paid to the work of this Association and to the Voluntary Associations for their valuable assistance in carrying out the Mental Deficiency Act, and their strenuous work in all directions for the improvement of the lot of the mentally defective.

Mental Hospital Lady Visitors.—There is another voluntary movement slowly progressing which does not yet appear to have caught the Board's eye, *i.e.*, the attachment of lady visitors to the mental hospitals for field work in regard to new admissions, to act also as links between the patients and their homes, and to play the part of "ladies-compassionate" generally. Their work ceases on the patient's leaving hospital and being handed over to the After-Care Association. Their usefulness to the medical staff and the patients is freely acknowledged by those mental hospitals (mainly London County so far) which have opened their doors to them. They are willing workers, deserving of every encouragement, and an extension of their activities would do much to bridge the gap which unfortunately exists between life in the mental institutions and that of the community at large.

Research work.—The section devoted to scientific work in mental hospitals grows more bulky every year. We notice that the valuable scientific work done by the medical officers in the Metropolitan Asylums Board institutions is not included, which is regrettable, for it is deserving of a wider circulation than it now receives by being restricted to the Board's Annual Report.

(Concluded.)

Clinical Psychology. By LOUIS E. BISCH, M.D. Baltimore: Williams & Wilkins Co., 1925. Demy 8vo. Pp. xiv + 346. 15s. net. (English agents: Baillière, Tindall & Cox, London.)

From the point of view of the contents the title of this book is somewhat unfortunately chosen, for, strictly speaking, their scope is neither clinical nor psychological. The author, however, disarms criticism by disavowing any claim to originality. It is a compilation from many sources which has developed into a book out of his lectures to students at Teachers' College and in the extension courses at Columbia University. The aim of the author has been "to give the teacher a working basis by means of which he or she may be able to recognize an atypical child in the class-room and to know how best to handle the situation." While useful as a compendium of information on different types of abnormal children and of methods of mental testing of varying utility to teachers, where the volume fails is in an over-elaboration of detail. Thus the synoptic table of classification alone covers seven pages, and more than a hundred pages of appendix are devoted to the relation of individual case-histories and test-results, which would probably give a clearer mental picture if they had been less strictly schematic. The scheme for a detailed examination of a child covers eighteen pages. This burden of detail makes the book resemble an over-burdened note-book without any evidence of the relative value of the information which it contains, and detracts from its value as a guide to the elementary school teacher.

G. A. AUDEN.

La Psychologie des Névroses (The Psychology of the Neuroses). Par le Dr. O.-L. FOREL. Geneva: Librairie Kundig, 1925. Crown 8vo. Pp. 258. Price 4 francs (Swiss).

The number of publications dealing with psychological problems is very considerable. The divergent views, the schools and the methods advocated vary to such an extent that orientation and discernment have inevitably suffered. In the present work the author has endeavoured to show precisely what are the criteria of the neuroses, what constitutes the dividing line between the neuroses and the normal on the one hand, and between the neuroses and the psychoses on the other. In order to define the position of the neuroses as part of a whole system, the first portion of the book is devoted to a consideration of the psychological and the psychopathological bases of mental medicine. It is obvious that, like many of his Swiss *confrères*, Dr. Forel is thoroughly conversant with the latest views on psychiatry in those countries adjoining his own. As some of these views are very extensively held on the continent, and as they differ in many respects from those held in this country, it may be of interest to the reader of this Journal to refer to them in some detail. It is pointed out that, for many clinicians, the dementia præcox group embraces at least three-quarters of all the psychoses whose anatomical substratum and true ætiology are but little understood. But as the author does not regard dementia

præcox (or, as he calls it, "precocious dementia") as either a dementia in the true sense of the word or necessarily precocious, he prefers and adopts "the more prudent and more significant term of 'schizophrenia' which was introduced by Bleuler."

Dr. Forel divides the whole system of mental pathology into three main groups: (1) The first or congenital dementia group includes idiocy and imbecility on the one hand, and oligophrenia on the other. The latter term comprises the lesser degrees of mental debility, moral insanity, some of the "born-criminals," etc. (2) The second group comprehends the psychoses proper, and is subdivided into (a) organic dementia, which includes general paralysis, arteriosclerotic dementia, senile dementia, certain sequelæ of encephalitis, epileptic dementia, etc.; (b) schizophrenia, which includes paraphrenia, paranoid dementia, periodic dementia of Kretschmer, hebephrenia, etc.; (c) toxic psychoses. It will be noticed that the clinical entity which Kraepelin has designated manic-depressive insanity does not find a place in this classification. The author would include mania, melancholia, and the circular types of insanity under the comprehensive term of "schizophrenia." (3) The third group is composed of the neuroses.

The author disagrees with those who would attribute the neuroses to any one particular cause. He holds that a neurosis is the result of a continuous conflict, that it is the fruit of numberless causes, of every interaction between the ego and its environment. He, however, says it is most important to remember that a hereditary morbid predisposition is present in every case. There is a tendency among certain observers (*e.g.*, Kretschmer and, more recently, Bleuler) to regard the psychoses as merely an aggravation of the neuroses. But Dr. Forel has not, so far, been converted to this view. According to him the most advanced neurosis differs entirely from a psychosis in spite of certain phenomena which may be present in both conditions (hallucinations, depression, etc.). A distinction is made between the neurotic and a neurosis; the former condition may persist throughout life without necessarily developing into a neurosis. In like manner the term "schizoid" is used to denote a person with a tendency to schizophrenia, but who may go through his existence without becoming insane.

Prominence is given to a character sketch of the neuroses as distinct from the schizoid, schizophrenic, and oligophrenic characters. The author shows how different clinicians have sought to trace the gradual development of the psychoses from their very commencement. Bleuler holds that the associations are primarily affected in schizophrenia. His ingenious hypothesis may be briefly summarized as follows: Normal thought is influenced or determined by orientation towards an object. The direction and the object towards which we tend are abstractions variously combined and complicated. When trouble occurs in the mechanism of recent associations and memories, the derangement caused is followed by a perturbation of notions of the object, and a corresponding modification of conduct. Sensations and perceptions are no longer taken into account by the reasoning powers; the latter

become impaired and create divergent notions, which are not corrected by later perceptions. The affective sphere intervenes in an imperious fashion, suppressing all that is undesirable. Henceforward continual gaps occur in logical sequence, which become filled in by delusional and illogical ideas of the same quality. Once this state is reached, the reactions of the patient to external influences, as well as to personal sentiments, become more pronounced, and create a series of secondary symptoms, all of which may be traced to the primary phenomenon.

There is a chapter on the psychological disorders of infancy and adolescence. Another chapter is devoted to the neuroses of adult life. A brief outline is given of psycho-analysis and of the other therapeutic methods. Seeing that he attaches so much importance to psychological causes, it is not surprising to find that Dr. Forel is a strong advocate of psychological treatment for the neuroses. He refuses to recognize any specific therapeutic method: "The therapist who applies the same so-called specific method to every case makes himself the slave of that method." He recognizes two main forms of treatment, *viz.*, psychological analysis and suggestion. For him the only rational form of psycho-therapy is that which selects from all the approved remedies the elements most suited to the individual. He says the majority of psycho-therapists use analysis combined with suggestion, or—in the numerous cases where analysis is useless or impossible—suggestion with or without hypnosis.

NORMAN R. PHILLIPS.

La Psychanalyse, les Médecins, et le Public. By Dr. HENRI FLOURNOY, Privat-docent à l'Université de Genève. Editions Forum, Neuchâtel et Genève, 1924. Pp. 35.

This small pamphlet originated in a lecture given by the author in December, 1923, at Paris, and is designed by him to give, in the first part a brief general exposition of the fundamentals of Freud's psychology, in the second part a few general remarks on psycho-analysis as a scientific doctrine and as a method of treatment.

It fulfils these aims most admirably; it points out that psycho-analysis can be regarded as a method of psychological investigation, as a body of doctrine and hypothesis about mental activities, and as a method of treatment. It gives a brief and accurate account within its limited scope of what the method of psycho-analysis is, and of its foundation in the belief that instinct and emotion underlie all mental processes; that conflict between emotions, with repression of some of their manifestations and approval of others, give rise to various neurotic symptoms, and that a study of the dynamics of mental processes, giving due consideration to those hidden from consciousness, can lead to an understanding of mental conflicts and help in their resolution.

The author sums up very wisely the various forms of opposition and enthusiastic acceptance with which psycho-analysis has been received; he points out why the stressing of sexual trends is necessitated by their greater social suppression than holds for the

ego-trends, and emphasizes that psycho-analysis has not only insisted on the importance of the crude instincts, but also on that of their sublimation into all forms of social and artistic products. He gives due appreciation to the fact that psychology is not an exact science, and that Freud and his school claim only to have put forward tentative theories to be proved by experience.

Finally he discusses the value of the method from the point of view of treatment, pointing out that it does not claim to be a universal panacea, but only a method, possibly lengthy and uncertain, like the sanatorium treatment of tuberculosis, which can claim some good results in suitable cases, but which will not necessarily cure every case, which can help some cases where other methods fail, but may in others even cause an exacerbation of the disorder, and for which generally it may be said, as of most other methods of treatment, that on the whole it is of value if properly applied to suitable cases, and that in some cases it can help where other methods fail.

The pamphlet is well suited to give the general practitioner or the lay reader an idea of what psycho-analysis is, and a sane evaluation of its place as a scientific method and doctrine.

M. R. BARKAS.

Northumberland Standardized Tests. Prepared by CYRIL BURT, M.A., D.Sc. Test I, Arithmetic; Test II, English. London: University of London Press. Specimen set, 1s.

Probably examinations are as old as formal instruction, and the preacher of old merely voiced an archaic instinctive feeling. The discussion as to whether examination questions should be few and long or many and short is also one of long standing, and the question may for many determine the source from which they shall seek their qualifications. The author of these tests clearly is of the opinion that for selecting children for scholarships at the ages of 10 to 12 the advantage lies with a multiplicity of brief problems. Also so far as English is concerned, he adopts the method of giving in print three alternative answers to each question or part of a question, leaving the pupil to underline the selected answer. This, he points out, has two advantages: it eliminates differences in the speed of writing—a very variable factor in children—and also ensures that all examiners will “allot exactly the same marks to equivalent answers—an utter impossibility with answers of the essay type.” It may be thought to have the further advantage of handicapping the verbalist type, who is unduly favoured under the more traditional system. In this system a book is given to each candidate, who is given seven minutes exactly to tackle each question and must stop to the second. The type of question may be indicated:—In geography, “Draw a line under the right words, wherever two or more words are printed in thin type between brackets. ‘London is the capital of (*France, America, England*).’” Or in spelling, “Read this story and underline every word that is wrongly spelt: ‘Their is fur on a cat, butt none on a fish,’ etc., or ‘To-morrow is

Wensday, an a grate numbre of diferrent artikles are two be soled hear—pianoes, sowing machines,' etc.'" In arithmetic the tests cover the mechanical application of processes, mental arithmetic, selection of rules and powers of reasoning. In English they show the powers of understanding the meaning of words, spelling, the construction of sentences, history and geography. Tests of this type are very helpful alternatives and may have a clinical value for the estimation of backwardness in individual children, since exact norms are given, but for this purpose the user of the tests must be careful to adhere exactly to the full instructions for their application if he is to utilize the results in a comparative manner.

E. SHRUBSALL.

Sex Hygiene. By OLIVER WALDO LINCOLN. London: John Bale, Sons & Danielsson, Ltd., 1925. Pp. vi + 33. 1s. net.

From the scientific point of view this little book does not merit the slightest attention. But productions of this kind are of importance, for the harm which they do is only too well known to every practising psychiatrist. The book is mainly concerned with the alleged evil results of masturbation. All kinds of ill-effects are stated to follow this practice, and descriptions are given (including one of "neurasthenia") which would terrify a boy or girl who had indulged even occasionally in masturbation. For the author draws no distinction between the occasional and the excessive practice of that habit. It is talk of this kind which has done so much harm. The book asserts that masturbation is practised to a far less extent by females than by males. All the available scientific evidence directly contradicts this view. The author appears to have an obsession on the subject, and he attributes the alleged deterioration of the British race chiefly to this cause. If a hundredth part of what he asserts about masturbation were true, the whole human race would have ceased to exist. The book is written in the style of fifty years ago. Even a "lady medical practitioner" is not to be trusted to give sex instruction to school girls, unless accompanied by the school nurse, or by "another suitable lady of high character." Parents are advised to impart sex teaching to their children by means of illustrations drawn from botany. In this connection the author actually suggests that the terms "lady flower" and "gentleman flower" are to be preferred to those of "female" and "male." It is difficult to write with patience of such absurdities as these.

M. HAMBLIN SMITH.

The Women Characters in Richard Wagner. By LOUISE BRINK, Ph.D. New York and Washington: Nervous and Mental Diseases Publishing Co., 1924. (Monograph Series No. 37.) Med. 8vo. Pp. xv + 125. Price \$2.00.

When religious apologists, unable to stomach the sensuality of the "Song of Songs," gave this love poem a spiritual interpretation in terms of their own orthodoxy, they were doing what all critics of

works of art are apt to do when they are incapable of pure æsthetic appreciation. We are all of us prone to seek an understanding of the lower in terms of the higher, to regard all human activities in terms of the highest moral artistic or social standards that mankind has achieved. But with the triumph of the biological sciences in the field of pure zoology, in the realm of sociology, and latterly in the domain of psychology, the historical method seems to have come into its own, and the interpretation of phenomena not only in these fields but even in the realm of art has been in the direction of explaining the most complex phenomena in terms of simpler processes that have been found by research to have preceded them. The two methods of approach are strikingly exemplified by the way in which the problem of the *Ring of the Nibelung* of Richard Wagner has been dealt with, on the one hand by Mr. Bernard Shaw, and on the other hand by Dr. Louise Brink, whose book is before us.

Mr. Shaw, in the *Perfect Wagnerite*, while analysing with characteristic lucidity the history of the Nibelungs, treats the whole story as a statement of Wagner's socio-economic outlook, the struggle of the vital forces in romantic youth against the greed and intellectual dominance of tradition embodied in a capitalistic society. Whether Shaw is justified in making of the Ring a Fabian tract is not of interest to us in this review, but that he approaches, howbeit on a different plane, the solution suggested on psycho-analytic grounds by Dr. Brink is a matter of no small interest.

Dr. Brink, while accepting the broad Freudian position of mental development, goes somewhat further in that she adopts the view that the Saga embodies the struggle of the Folk mind in its endeavour to express in the form of poetry its own psychological unfolding.

Limiting our review to the domain to which the authoress has confined herself—that is, the women characters of the Ring—we find that Wagner's theme is the psychological struggle in woman's bid for complete biological expression.

The Rhinegold opens the first act of the human drama at the infantile level of simple uncritical pleasure gratification. The Rhine maidens are engaged in guarding the treasured gold, innocently gambolling in the green depths of the Rhine, into which the sun occasionally throws a ray of light to illuminate the treasure. Here we have the psycho-analytic lowest level of infantile anal interest, the confusion of the nutritional with the excremental interest and its later false identification with reproduction and with creativeness. Hence the gold becomes something to be possessed as the very source of power. But above, Wotan, first of the gods, is preparing to enter the castle which the giants have built for him. Fricka is the spouse of the god, and represents the bourgeois narrow and unemancipated woman. Salvation cannot come from her, nor from the daughter of this marriage, Sieglinde, who, marrying her brother Siegmunde, offends against Fricka, the upholder of the established moral order. Fricka derides Wotan for entertaining the notion that Siegmunde should have full possession of Sieglinde by slaying Hunding. Woman must, therefore, undergo a further development before she can be free to love, and that love can only

be obtained by union with a hero who shall himself surpass the gods in being indifferent to the gold to which even Wotan himself had become partly enslaved. From Sieglinde the hero is to spring, and Brunnhilde, still tied to parental authority and love, shall sleep through the fires of adolescence until that very hero will come to deliver her. Only the complete man who can slay the dragon of material gratification and yet remain indifferent to the gold that it has been guarding can wed the woman who, in her turn, has freed herself from the thralldom of father- and daughter-love. But the curse of the past still pursues not only Brunnhilde, but Siegfried the hero also. The brother-sister motive which psycho-analytic researches have brought out explains the ultimate tragedy of the Ring and the death of Siegfried. The rich and intricate texture of the Ring has been very fully dealt with by Dr. Brink in her psycho-analytic treatment, and by a frank statement of the incest motive as it affects the women characters of the story, she has thrown a considerable light where before there appeared little more than a confused and tangled undergrowth of dim folk-lore. That the whole of Wagner has not been exhausted goes without saying. The woof and the warp of Wagner's orchestral embroidery still remains a subject for wonder and delight, and however the analyst may correlate the story of the Ring with vicissitudes of the musician's own love life and of his musical-poetic expression of the great Nordic myth, we can but make one comment on this music-drama: "There's magic in the web of it."

The critical comment one is obliged to make on this volume is firstly that the argument is unnecessarily long-winded and that the theme is frequently repeated without enrichment; further, that the translation of Wagner's own libretto is frequently dull, if not always intelligible, and that Dr. Brink's own language painfully suggests a translation from German into American. E. MILLER.

The Cerebro-spinal Fluid in Clinical Diagnosis. By J. GODWIN GREENFIELD, M.D., B.Sc., M.R.C.P., and E. ARNOLD CARMICHAEL, M.B., Ch.B. London: Macmillan & Co., Ltd., 1925. Demy 8vo. Pp. viii + 272. Price 12s.

Our knowledge of the composition of the cerebro-spinal fluid and the pathological changes which it undergoes in disease has increased vastly during recent years, but the results of research are so disseminated through medical literature that the student has hitherto found it an arduous task to search out the various articles. Drs. Greenfield and Carmichael have simplified that task, and have produced a volume embodying not only a collection of the more important recorded facts relating to normal and abnormal cerebro-spinal fluid, but also the results of their own investigation of a large number of fluids in different diseases, and an excellent bibliography as a guide to those in search of even more detail.

The first section of the book deals with the various substances present normally and abnormally in the fluid, and their variations in health and disease.

The second part is arranged under the heads of the various diseases, describing the findings on analysis of the cerebro-spinal fluid in each; and the last is composed of detailed descriptions of the technique of the various analyses and "reactions."

There is a very useful chapter on diagnosis, in which broad lines are laid down as guides to diagnosis from the laboratory examination of any given fluid.

This volume should prove of great help to the clinical pathologist and also to the clinician, and the writers are to be congratulated on having made a valuable contribution to medical literature.

WILLIAM MOODIE.

Part III.—Epitome of Current Literature.

1. Neurology.

The Experimental Study of the Romberg Sign. (*Journ. of Nerv. and Ment. Dis.*, May, 1925.) Fearing, F. S.

The author concludes, after considering the results of his own researches with a Miles ataxiometer and those of others, that static equilibrium as represented by sway is affected by such factors as height and weight, and also position of the feet, the effect of the former being much less than that of the latter. The Romberg position is more unstable than the V-position of the feet. Static equilibrium is affected by practice; the effect is not a great one as in most neuro-muscular activities. Static equilibrium is affected by the direction of attention; the control of attention tends to reduce the amount of sway. From a consideration of the course of the nervous impulse, the author considers that static equilibrium cannot be a response of the simple reflex type, but that it involves the integrated activity of at least two neural paths.

G. W. T. H. FLEMING.

Tumours of the Pineal Body. (*Arch. of Neur. and Psychiat.*, April, 1925.) Horrax, G., and Bailey, P.

These authors as a result of a clinical and pathological study of twelve verified cases of tumours of the pineal body come to the following conclusions:

(1) Of the five pre-pubertal cases, two showed considerable evidence of "pubertas præcox." (2) The presence of "pubertas præcox" in a patient who also shows manifestations of increased intracranial pressure and of involvement of the corpora quadrigemina is pathognomonic of pineal tumours, but there is no evidence from their histological and pathological studies that any secretion can come from the pineal cells to cause this syndrome. (3) The neurological localizing signs of pineal tumours consist largely of (a) Involvement of the corpora quadrigemina, *i.e.*, oculomotor palsies and partial or complete deafness; (b) spasticity, usually bilateral:

(c) evidences of implication of the cerebellum or cerebellar tracts. (4) The pineal body is made up of two cell-types—(a) neuroglia cells, and (b) pineal parenchymatous cells with a connective-tissue stroma. No nerve-cells are present. (5) Many of the tumours of the pineal body consist of the foregoing elements in varying proportions, and are best to be described as "pinealomas" of adult type. (6) Some tumours of the pineal body consist of embryonic cells of ectodermal origin, and may be called "pinealomas of embryonic or spongioblastic" type. G. W. T. H. FLEMING.

Experimental Studies indicating an Infectious Ætiology of Spasmodic Torticollis. (Journ. of Nerv. and Ment. Dis., January, 1924.) Rosenow, E. C.

This author, during the course of experiments with the streptococcus from encephalitis, epidemic hiccup and chorea, noted that a small percentage of patients developed peculiar movements of the head. Intracerebral or subdural inoculation of suspensions from nasopharyngeal swabs in sodium chloride solution, of pus from tonsils, or aspirated from the depths of pyorrhœal pockets, were chiefly employed. Eight cases of torticollis were utilized; all had focal infections in tonsils, teeth or pharynx. Removal of tonsils and infected teeth and the continued use of vaccines from the brain of positive rabbits were followed by the disappearance of abnormal hyperæmia, secretion, and the characteristic streptococcus from the throat, and in two cases temporary improvement resulted. Blood plate agar cultures yielded in eight cases a green producing streptococcus. Of 70 rabbits injected intracerebrally with suspensions or cultures of the streptococcus, 42 developed peculiar tic-like movements, 10 rhythmic movements, and 20 turning of the head. Tremor developed in 28, hyperpnœa in 21, spasms of the abdominal muscles in 5, of other muscles in 10, paralysis in 22, nystagmus in 8, and lethargy in 4. Forty-eight died—a mortality of 69 per cent. The lesions were always central.

G. W. T. H. FLEMING.

Neurosyphilis in Panama. (Journ. of Nerv. and Ment. Dis., December, 1923.) Wender, L., and Sampson, D. G.

The character of the psychotic symptoms of a race depend to a large extent upon their degree of civilization; the lower the scale of civilization, the less elaborate the delusional system and symbolic expression. Grandiose delusions were seldom found. The Panamans are very emotional: the slightest emotional stimulus that would exert little or no influence on North American or West Indians affects them profoundly. Treatment consisted of the administration of arsphenamine or neo-arsphenamine every six days, and lumbar puncture with drainage every six weeks. Mercury and iodides were given orally to the limit of tolerance. The cerebro-spinal fluid could always be shown to contain arsenic. This treatment resulted in negative laboratory findings and a return to normal status in 25 per cent. of the cases of neurosyphilis

of nonparetic type. Of the admissions for five consecutive years 17.24 per cent. were suffering from neurosyphilis.

G. W. T. H. FLEMING.

Notes on the Nature and Origin of the Cerebro-spinal Fluid. (Journ. of Nerv. and Ment. Dis., February, 1924.) Hassin, G. B.

The commonly accepted view of the origin and course of the cerebro-spinal fluid is that it is secreted by the choroid plexus into the ventricles, flows from there into the third ventricle, aqueduct of Sylvius, fourth ventricle, and then through the foramina of Magendie and Luschka to the subarachnoid space, where it is absorbed by the arachnoid villi. It is also absorbed by the perineural spaces of some of the cranial nerves (olfactory, optic, trigeminal and hypoglossal). From the last it reaches, through the tissue-spaces, the lymph-spaces of the neck and the general circulation. Becht does not admit that the choroid plexus secretes the cerebro-spinal fluid. His results flatly contradict it. As a result of histopathological studies Hassin makes the following comments: In addition to the above-named spaces, there are other spaces which harbour the fluid. These cavities, microscopic in size, and innumerable, are situated within the adventitial layer of the blood-vessels. These are the Virchow-Robin spaces, which are not seen under normal conditions, but under pathological conditions are very conspicuous. These spaces communicate with the subarachnoid cavity by which they are drained, and in this way the contents of the spaces are discharged into the subarachnoid space and into the ventricles. The direction of flow is away from the brain-tissue and towards the subarachnoid space. The following histopathological facts support this hypothesis: The brain-tissue in a case of meningeal carcinoma was quite free from nodules, whilst the subarachnoid space, subdural space and dura were intensely infiltrated with carcinoma cells. Similarly in a case of cerebro-spinal meningitis the pia was intensely infiltrated with plasma-cells, the subarachnoid space densely packed with pus-cells, but the parenchyma of the brain was free.

Foerster injected sterile Indian ink into the brain and located it in the subarachnoid space. Essick injected laked blood, and found a remarkable reaction in the mesothelial cells. A solitary tubercle of the spinal cord is always associated with a tubercular meningitis, but the reverse condition does not hold.

In degenerative conditions of the central nervous system (softening, multiple sclerosis, subacute combined degeneration, etc.) areas of degeneration packed with lipoids are scattered throughout the brain and spinal cord, and are separated from the pia arachnoid by quite healthy tissue. Yet large amounts of the lipoid substances are to be found in the subarachnoid spaces, enclosed within Gitter cells, in the distended meshes, or in the Virchow-Robin spaces. In brain abscesses the abscess may be surrounded by a connective-tissue capsule containing large amounts of lipoids and separated from the subarachnoid space by healthy tissue. Yet the lipoids reach the subarachnoid space. In hæmorrhagic foci both the

Virchow-Robin spaces and the sub-arachnoid spaces are found filled with blood-pigment, which can be demonstrated in the spinal fluid. In embolism and thrombosis of cerebral vessels the spinal fluid always gives a negative benzidine reaction; in cerebral hæmorrhage this reaction is always positive.

The subarachnoid space is a receptacle for the waste products discharged by the parenchyma of the brain and spinal cord. The presence or absence of the Lange test, the positive or negative Wassermann, the presence or absence of the globulin and similar reactions can be understood only on the assumption that the cerebro-spinal fluid is a direct product of the nerve tissues themselves. The cerebro-spinal fluid then originates in the central nervous system, is discharged *viâ* the Virchow-Robin spaces into the subarachnoid spaces and the ventricles, and is absorbed in the former by the arachnoid villi, in the latter by the choroid plexus.

G. W. T. H. FLEMING.

Reflexes of Different Order elicitable from the Abdominal Region. (*Arch. of Neur. and Psychiat.*, June, 1925.) Monrad-Krohn, G. H.

Krohn draws attention to the fact that every reflex contraction of the abdominal wall must not be regarded as identical with the normal cutaneous abdominal reflex. There is a periosteal reflex of the costal margin, elicitable by percussion of the costal border, internal to the mammillary line. This reflex consists in the contraction of the abdominal muscles with deviation of the umbilicus towards the point of percussion. In a great majority of cases, when the cutaneous abdominal reflex is abolished in a pyramidal lesion, the costal reflex is brisk and may even be exaggerated. The abdominal reflex described by Dejerine and Long in a case of complete transverse lesion of the spinal cord, Krohn considers might have been a pathological type of abdominal reflex.

Krohn himself describes a similar reflex in a case of right hemiplegia in which there was a flexion of the homolateral limbs. It appeared after a longer interval; the contralateral muscles occasionally contracted more forcibly than the homolateral muscles, causing deviation of the umbilicus and linea alba to the left. The stimulus required to elicit this bilateral reflex was much stronger than that required to elicit the normal reflex from the right side. The tickling sensation that accompanied the normal left abdominal reflex was absent. This reflex undoubtedly belongs to the order of reflexes of spinal (mesencephalic) automatism. The pathological reflex is rather a "retraction reflex," the normal one is a "unilateral deviation reflex."

G. W. T. H. FLEMING.

Behaviour of the Plantar Reflex in Jacksonian Epilepsy. (*Arch. of Neur. and Psychiat.*, May, 1925.) Tournay, A.

Tournay, after studying two cases of Jacksonian epilepsy, concluded that the plantar reflex may behave in various ways in the course of Jacksonian epilepsy:

(a) It may be in flexion between the attacks and remain in flexion during the attacks.

(b) It may be in flexion between the attacks and show extension at the end of the attack.

(c) It may be in extension between the attacks and be abolished temporarily after the beginning of the attack.

The author thinks that possibly the Babinski sign following convulsion is due to fatigue of cortical centres with release of lower centres, and quotes Kinneir Wilson in this connection—"At any moment cortical, voluntary activity obliterates that of lower motor centres; rapid phase changes are possible because of the master control of the cortex."

G. W. T. H. FLEMING.

A Clinical and Experimental Study of Hyperthermia. (Arch. of Neur. and Psychiat., June, 1925.) Kornblum, K.

The evidence in favour of the fact that heat regulation is under the control of the central nervous system appears fairly well established. The heat centre was assumed by Tscheschichen in 1866 to be somewhere above the medulla. Wood, in 1880, found that destruction of the first cerebral convolution in the dog posterior to the sulcus cruciatus was followed by a decided increase in heat production. Ott, in 1884, stated that there were in the vicinity of the corpus striatum centres regulating temperature; later he localized a centre in the anterior inner end of the thalamus. In 1885 Aronsohn and Sachs by the heat puncture method demonstrated a heat centre in the medial aspect of the corpus striatum. Baginsky and Lehmann, in 1886, demonstrated that the corpora striata are involved in the regulation of body temperature. In 1890 Hale-White produced hyperthermia in rabbits by puncture of the corpus striatum and thalamus. In 1891 the same writer showed that injury to the corpus striatum and septum lucidum caused a rise in temperature, and that the lesion need only be unilateral. He found no elevation of temperature after injury to the thalamus or to the white matter round the thalamus and corpus striatum. In 1909 Aisenstat found the maximum rise of temperature by puncture of the antero-medial portion of the thalamus. There was also a rise after puncture of the caudate nucleus and the corpus striatum. Sachs, in 1911, stated that the optic thalamus, caudate nucleus and lenticular nucleus contained no centres that on direct stimulation produced changes in temperature. In 1912 Jacobi and Raomer, by injection of irritants into the ventricles, concluded that the hyperthermia of heat puncture was the result of distension, irritation, and hyperæmia of the walls of the lateral ventricles. In 1912 Barlow found on heating the anterior region of the corpus striatum a decrease in temperature, and on cooling the opposite effect. In 1913 Barlow and Wing produced an increase in temperature by the direct application of pyretic substances to the corpus striatum, and a lowering from the application of antipyretics. In 1914 Isenschmidt and Schnitzler stated that the tuber cinereum in rabbits is the most important central organ of heat regulation. Sachs and Green in 1916 and Moore in 1918 were unable to obtain

positive results by the methods used by other workers. From his own experiments, which consisted firstly in the implantation of small tubes containing radium in the basal ganglia, pons, medulla and pituitary body, histological examination showed that the effect of the radium is far more wide-spread than the gross appearances would suggest. The author subsequently used the electric current, and Kornblum concludes that the highest temperatures produced were not dependent on a lesion in any special area of the brain.

In summarizing, he maintains that the term "heat centre," or "temperature" centre, ought to be dropped as it is misleading. There are undoubtedly in the brain widely distributed reflex arcs that are essential to the maintenance of body temperature. These arcs find their chief pathways in the basal ganglia and brain-stem. He believes that all fevers are of toxic origin, whether the toxin be the result of poisons introduced as in infectious disease, absorbed from local areas of gangrene, etc., from sapræmia, or as the result of errors of metabolism. The existence of a cerebral heat centre is not confirmed.

G. W. T. H. FLEMING.

2. Psychology.

Mental Examinations of College Men. (*Amer. Journ. of Psychiat.*, April, 1925.) Peck, M. W.

The personality study of college students is by no means new, but so far its activities have been confined to selected material, such as groups taking psychological courses, or those who have sought aid on account of mental symptoms. It is claimed that all students would benefit by some such study by a competent psychiatrist, and the writer gives the results of his studies of a group of twenty entirely unselected cases. The method he adopted was to say as little as possible, while encouraging the subject to talk on various topics which gave an intimate glimpse into his personality. Some sort of classification is necessary, and the extrovert and introvert type of Jung was found to work satisfactorily. Having placed his subjects the writer proceeded to explain these different types, and found the students quite apt in seeing their application to themselves. The main points to be emphasized are that both types are fundamentally normal, but it is important for the extrovert that, in the use of his major tendency, he should not neglect to develop an appropriate amount of introversion as a balancing factor, and *vice versa*. So, too, with the supplementary functions of thinking, feeling, intuition and sensation, for unless given recognition and opportunity they will find expression at an unconscious level in a primitive and ineffective way, and thus hinder the construction of a well-rounded personality. By such knowledge the danger of one-sided development may be averted, the student may be spared futile attempts to make himself some other type than the one for which he is constituted, and it should be easier for him to find the particular vocational niche for which he is fitted.

Of the twenty unselected men examined, 13 were normal, 10

of these being of the extrovert type; 2 suffered from definite neuroses, were both introverts, and benefited greatly by psychotherapy; 5 suffered from minor personality disorders, which apparently required no treatment.

While admitting that his work in this field has not been extensive, the writer considers it justifiable to conclude that routine mental examinations could advantageously be applied to college students, contributing something worth while to nearly every man, and of especial benefit in conditions of faulty mental hygiene and the minor neuroses. The proportion of college students suffering from personality disorders and functional nervous illness is large, and these conditions appear to bear little relation to general physical health. The majority of students are interested and co-operate in such examinations, and many, if given the opportunity, will come forward voluntarily to discuss their problems. A. WILSON.

3. Psycho-Pathology.

Problems of Morphinism [Über Probleme des Morphinismus]. (Zeits. für die ges. Neur. und Psychiat., May, 1925.) Wuth, O.

This paper discusses again the various theories of the action of morphia. The author finds all the theories inadequate, as these general conceptions of a "metabolic revolution" give no clear understanding of the processes involved, and are too elementary to do justice to the complications of the processes occurring in the organism.

He defines the symptom-complexes of the periods of habit-formation and abstinence, showing as regards mental state and physical concomitants that the two are generally antagonistic, how these groups are roughly parallel, the former with those of hypothyroidism, the latter with hyperthyroidism, or more generally that morphia acts on the whole as inhibitor to the sympathetic and stimulator of the parasympathetic, while its abstinence has the reverse effects. He remarks, however, that this antagonism of the sympathetic and parasympathetic must not be over-emphasized, as it has now been shown to be not so simple as was thought. Generally speaking, however, he considers apparently that morphia lowers the tone of the whole vegetative nervous system, and that during the habit-formation the parasympathetic tonus predominates, while during abstinence the sympathetic tonus does so. He points out that individual variations in the autonomic tone and response probably play a part in determining the reaction of any individual to the drug.

He then discusses the relation of the endocrine glands to morphinism. He quotes experimental work showing that thyroid feeding makes animals more susceptible to morphia, and that morphia and thyroid have similar effects on metabolism, especially as regards nitrogen. Adrenalin in many ways antagonizes morphia. The blood of animals suffering from morphia abstinence symptoms produces similar symptoms in normal animals.

He makes the tentative suggestion that morphia is taken to combat discomfort of mind or body from disorders of the vegetative system, and it lessens the tone of the sympathetic, thyroid and adrenal systems; the organism tries to re-establish its autonomic-endocrine balance. A larger dose is needed next time to produce the same effects, and its withdrawal leaves the antagonistic system overacting. The psychopaths and neurotics who form the bulk of the drug *habitue's* suffer from disorders of the autonomic system, on which morphia has its specific action.

This view explains why other hypnotics are unsatisfactory to combat the abstinence symptoms, since these act on the cortex rather than on the vegetative centres; hence the weaker analgesics, such as aspirin, are actually more effective. Further investigation of endocrine therapy may afford still more useful remedies. Such experiments are also being made with cholin, the antagonist of adrenalin. The individual's endocrine balance should be considered in each case.

M. R. BARKAS.

A New Theory of Hysteria [Eine neue Theorie der Hysterie]. (Münch. med. Woch., January 16, 1925.) Engelen, Dr.

It is now becoming evident, in the light of the post-encephalitic syndromes, that hysteria produces states which have only recently been discovered to have an anatomical foundation. Thus the motility of Parkinsonian cases varies under emotional and external stimulation, and Liepmann's apraxia and Wernicke's tactile agnosia are other organic conditions closely simulated by hysteria holds sway over anatomical and physiological mechanisms, whose organic basis and localization we are only beginning to understand.

Sahli (*Schweiz. med. Woch.*, 1923, No. 1) has suggested that the physical symptoms of hysteria are based on dysfunction in regions capable of anatomical localization, and that these regions are the intercentral "system" of association cells and tracts which link up the sensory and motor projection systems with consciousness. Examples of organic lesions of such regions are found in aphasia and apraxia—conditions comparable with the dysfunction in hysterical astasia-abasia and aphonia; in both the projection systems are intact, but cannot be utilized for normal purposes. Anæsthesia is seldom perceived by the hysterical patient, since the sensory system functions normally in unconscious adaptation to environment; hence lesions are not sustained unawares, as in syringo-myelia. Yet the sensations are not at the disposal of consciousness. The apparent purposiveness of the motor symptoms, such as hysterical contractures, tremors, fits, attacks of laughing and crying, etc., is explained by their having become automatic after a preliminary conscious stage, and thus able to function in hysteria in a state of detachment from conscious control. He suggests the term "schizoneurosis" instead of "hysteria" as describing the condition of splitting-off from conscious control.

Strümpell pointed out that specific hysterical symptoms arise on a foundation of a psychopathic disposition, which he regards as

being a definite physical disorder of the relations between consciousness and the functioning of the nervous system. Sahli considers the psychopathic tendencies to be a chance admixture or an added reaction of the mind to the disordered physical relationships. Similarly he holds that the so-called hysterical temperament is not an essential part of the disorder. He also rejects the theory that hysteria consists of a pathological volitional manifestation, since hysterical oedema, pseudo-tumours, anorexia and many other symptoms are quite beyond the power of the will to produce. Hypnosis and suggestion can also produce these, and they also depend on the capacity of the intercentral system to respond to influences. Most people can experience in dreams such "hysterical" symptoms as aphasia when trying to call for help, or abasia in trying to run away.

Sahli thinks the probable mechanism for the production of hysterical symptoms is "localized morbid alterations of responsiveness in the intercentral system, probably of the nature of a colloid change, which produce, according to their nature, manifestations of stimulation or inhibition." Lead, alcohol, tobacco, morphine, typhoid, scarlet fever, influenza, syphilis, diabetes are among the somatic factors which favour the arising of hysterical symptoms. The author adds his own observation that organic bromine compounds, such as promtron, are more effective than potassium bromide, since in the former the anion bromine, acts on the colloidal parts of the cell without the antagonistic action of the kation. Zondek showed that kations act like a parasympathetic stimulation.

He sums up that we must thus regard hysteria as an organic disease only partly conditioned by psychical processes, and amenable to psychotherapy only in so far as this acts on its physical basis.

M. R. BARKAS.

Cocainism and Homosexuality [*Cocainismus und Homosexualität*].
(*Zeits. für die ges. Neur. und Psychiat.*, March, 1925.)
Hartmann, H.

After briefly discussing some of the older literature on the psychotic and sexual manifestations of cocainism, Hartmann points out that it is only in quite recent work from various countries that reference has been made to the great predominance of sexual inversion and of persecutory delusions in the effects of cocainism, and that it is doubtful whether the assumption of a loss of sexual desire or potency is an adequate explanation for these abnormalities. He then quotes in some detail the histories of twenty cases observed by himself at the Wagner-Jauregg clinic during the past two years, leaving out eight further cases taken in but not under his own care. All entered either voluntarily or were brought by the police because of psychotic manifestations, many in a state of delirium, and all were suddenly deprived of the drug after taking from 2 to 10 grs. daily, no ill-effects being produced by the sudden withdrawal. He gives the warning that it is not easy to gain the confidence of these patients, who tend to be suspicious and untruthful, and are also very

suggestible; hence leading questions were carefully avoided, and the discussion of their sexual lives was undertaken only when their confidence had been gradually won. Hence he points out that his high proportion of positive findings of homosexuality is, if anything, probably lower than the real one.

Of his 12 female and 8 male cases, 7 women and 4 men were manifest homosexuals; of the remaining 9 only 3 state that cocaineism did not affect their sexual life, while the rest had lost or never felt heterosexual desire and satisfaction, and 3 had perverse leanings while taking cocaine (viewing, sadism, etc.). In some cases manifest perversions or homosexuality had existed before taking cocaine; in others a definite change in this direction had occurred under the influence of the drug, either during intoxication with it or since it had become a habit. A few retained heterosexual feeling and potency; most did not. The patients had for the most part lived among circles where drug-taking was usual, and reported that a great proportion of cocaine *habituals* were also inverts or perverts. All but one took it by sniffing; the one who injected it alone had aural hallucinations; the rest had all similar visual hallucinations and ideas of persecution.

Hartmann does not agree with the view of Marx, that the findings are accounted for by a simple removal of inhibitions, even if a predisposing factor is introduced to account for the special form of the manifestations. Nor is the inversion simply the result of a loss of potency. He believes that such drug effects open the way to research into the physiology of libido, which is simply the energy taking origin from the sexual instinct. Instinct forms the borderline between mind and body. We have learnt to investigate the developments of instinct from the mental aspect; in the specific effects of drugs we find alterations of organic states, such as the diversion of instinct from its normal goal. On the other hand, it is probable that here, just as in alcoholism, there is from the start an unusually strong proportion of homosexuality in the individual's disposition, giving both a special vulnerability of the normal heterosexual trends to the action of the drug on the one hand, and a special disposition to seek the pleasure or relief given by the drug on the other hand.

The paranoid form taken by the delusions produced by cocaine is explained by this homosexual latent or manifest tendency; ideas of persecution are found usually to be referable to homosexual wishes projected on the persecutor with the substitution of hate for love. Alcoholic paranoia shows a similar mechanism.

M. R. BARKAS.

Morbid Alterations of Personality [*Ueber krankhafte Persönlichkeitsveränderungen*]. (*Münch. med. Woch.*, August 22, 1924.) Bostroem, A.

After discussing at length what we mean by personality the author considers its relation to psychoses.

Personality is shown by the manner in which the life of instinct and emotion, rather than the intellect, manifests itself in an individual's

reaction to his environment. Hence a disturbance of the normal interplay of emotion and volition is the most delicate indicator of an alteration of personality, intellect being less important. The great difficulty of determining morbid change lies in the fact that any personality is complex and not easily grasped, and varies to some extent through life under the teaching of experience; even the patient's assertion that he feels a change may not be a true indication of the existence of such change.

Physiological processes involving a change of personality occur, such as those of puberty, which may be sudden, and those of growth (Jaspers), which are gradual. Senile changes vary—the personality may remain intact when memory for recent events is weak.

For a real pathological alteration the change must be permanent, and must appear as new and foreign to the previous personality, not explicable by its previous manifestations. It consists of the loss of essential qualities, but new character traits may also appear; most often the individual fails in the spontaneous utilizing of his knowledge and capacities, lacks the former urge to thought or action, and fails in control of instinct. It is often difficult to trace the onset of such a change, and to determine whether it is merely a development of pre-formed tendencies or really a new process.

Changes caused by exogenous factors are most easily seen, such as chronic alcoholism; the first defect is in emotion and volition—loss of will-power, sinking to a lower social status, defective emotional control, while intellect is later affected. These changes persist even after the drug is discontinued. But here, as with all drug-takers, a psychopathic personality may be responsible both for the habit and for its results. Changes occurring in epilepsy may be only the progress of an underlying tendency. In general paralysis a change in personality may be masked by rapidly progressing dementia. Lesions of the frontal lobe of the brain seem to affect the personality to a great extent.

In dementia præcox there is a peculiar and characteristic change of personality which, with the disorder of thinking, form the chief criteria for diagnosis; the personality change has here a definite nature, so that it may be described as a disintegration of the personality, a splitting into disjointed parts rather than a complete alteration; discordant elements cease to be united into a central ego, and their manifestations give the impression of belonging to a series of unrelated and irresponsible entities. Even if the intellect is unimpaired, in the absence of a unified guiding ego it lacks energy to carry on its functions. In cases of dementia simplex there is a more general change of the individuality with progressive loss of energy and spontaneous interest, so that the patients sink to a lower mental and social level without noticing the fact. Paraphrenia differs in that this disintegration of the personality does not occur; this may be due to the fact that a process, possibly the same in both cases, acts in the one on an immature, in the other on a mature, brain. Encephalitis shows similar variations in the effects produced on the personality at different ages, the most marked being those in childhood.

Generally, then, changes of personality depend on the nature of what causes the change; on the innate and acquired qualities of the nervous system and the body generally, especially their susceptibility to toxins, disease, etc.; and on the structure of the personality of the individual affected. In studying constitution we must include the constitution of the personality.

M. R. BARKAS.

The Attitude of the Patient towards his Illness [*Die Einstellung des Kranken zu seiner Krankheit*]. (Münch. med. Woch., February 13, 1925.) Stern, Erich.

Life, and especially the activity of the mind, is a resultant of the meeting of the individual and his environment; the stimuli from the latter may evoke in the former either innately pre-formed mechanisms or a fine adaptation to the particular stimulus, this latter being the higher form of reaction. The environment may be divided into that of nature, that of society, and that of culture; the body is a part of nature, and its processes act on consciousness in much the same way as do those of external nature. Organic physical happenings, if normal, give rise simply to a "sense of being alive," while disorders of their function may at first produce merely a general sense of uneasiness before definite symptoms arise. While the body is well consciousness is directed to the external world, and our activities in it. We do not observe the bodily processes until their disorder makes us "feel ill," and we then take up some attitude or other towards that illness, varying with the nature and severity of the disorder and with our individual disposition. The Nancy school have shown how greatly bodily functions can be influenced by mental processes; hence it is no wonder if the mental attitude of the patient towards his disease plays an important part in its manifestation, course and cure.

The term "experience" is used with a double meaning; on the one hand, all the actual and potential content of consciousness; on the other, anything which assails the centre of the personality, whether as furthering or as hindering our life purpose; the latter narrower sense may be spoken of as "central-experience" (*Erleben*). The experience of illness may fall into either group—a simple skin eruption may be simply noticed as existing, or may, by causing disfigurement, injure self-esteem or the esteem of others. The present remarks will deal only with illness as a central experience. Anything which breaks into our life or endangers it will become such a central experience, containing intellectual, emotional, and volitional components; bodily illness obviously comes into this category.

On the intellectual side the patient's experience of illness is primarily that of individual symptoms which enter his consciousness, and which he tries to localize in some definite organ; he ignores the fact that an organ may be gravely diseased without causing symptoms, while localized symptoms may have a psychogenic origin; he demands of the doctor a definite diagnosis, and tries to make one himself by comparison with former illnesses, and with

what he knows of those of other people, and attempts a prognosis. Two types of patient may be described on a basis of their intellectual attitude: the one calls to mind only the severest cases for comparison and makes a pessimistic prognosis, while the other thinks chiefly of mild cases and recovery; popular literature about health gives both ample data. These attitudes influence the course of the illness to a considerable extent. Giving the disease a name brings with it an experiencing of the illness as a whole, in the light of which symptoms are estimated; a relief of symptoms may bring neglect of treatment for the underlying process; correct diagnosis is supposed by the patient to involve correct treatment.

Every illness tends to withdraw the patient from the outside world and to turn his attention inwards upon himself; it may thus lead to a morbid examination and consequent increase of symptoms, and he discusses with himself and with the doctor every possible effect of every possible activity. The effect of the illness on the economic situation plays its part, whether anxiety about his family and work, about getting proper treatment, about escaping from unpleasant work and gaining through the disease an unearned income. All these intellectual preoccupations influence the illness. On the affective side the experience of illness has usually an unpleasant feeling-tone though it may also be pleasurable; thus the wounded soldier may be glad to escape from the front, the hysteric may enjoy the notice gained through his symptoms, the worker may enjoy a respite from work.

Fear and hope are the chief emotional accompaniments of illness, influence its duration and the patient's whole outlook; all gradations exist between the patient who predicts immediate death from a slight cold, to the one who remains indifferent to the most severe illness; this apart from the euphoria, probably organically founded, of, for example, the advanced case of tuberculosis. Fear of disease may lead to morbid avoidance of possible infection or injury, and even to the psychogenic production of the dreaded symptoms. When disease occurs there is fear usually of getting worse or dying, of pain, of possible after-effects detrimental to work or economic position; in chronic diseases fear of boredom and lack of occupation, of helplessness and desperation. At home the anxiety of relatives may increase these fears as in hospital the observation of other patients. The fearful patient is more likely to remain self-absorbed and show persisting psychogenic after-effects; he suffers more from his illness and takes longer to recover than those who retain their equanimity; his bodily illness will therefore require not only physical treatment, but psychotherapy directed to the removal of the harmful emotional and egocentric outlook.

Illness affects the individual's self-esteem, while the enforced inactivity gives free play to phantasy; these may bring about an alteration of the whole personality and its attitude towards life. Sometimes illness comes to be regarded as a punishment, and is followed by morbid introspection and self-reproach, and a turning of interest to religion or mysticism.

On the volitional side illness appears as an intervention from

without disturbing the activities of life; it appears a meaningless, uncontrollable happening, unforeseeable, unavoidable, imposed by fate. Some patients accept it passively, losing energy and will even for carrying out treatment, while others react by summoning up all their force of will to overcome the disease. Psycho-analysis may help by disclosing an unconscious will to be ill which is opposing cure.

Further investigation will show how different types of personality react in and towards disease, how the disease is shaped by the central experience of the personality, the whole outlook of the individual upon the world and upon life. Research is also needed into how external factors affect the experience of illness, such as the economic situation, kind of illness, form of treatment required; but it is the internal factors that essentially determine the nature of the experience and what attitude the patient assumes towards the external ones; and these internal factors depend upon his mental constitution and disposition.

M. R. BARKAS.

Dementia Præcox and Mental Energy [*Dementia Præcox und Psychische Energie*]. (Zeits. für die ges. Neur. und Psychiat., March, 1925.) Wiersma, D.

This is an attempt to support a new hypothesis put forward by the author in a work published in 1923 in the Inaugural Dissertation of Groningen (in Dutch). Briefly the view is that in dementia præcox, while emotions themselves are preserved, and may occasionally break forth in action or in delusion, the emotional energy of the different complexes is diminished, so that their feeling value, or the influence that they exert on the whole consciousness and personality, is less intense and produces the appearance of apathy and autism. He follows Heymans in distinguishing various kinds of mental energy analogous to the various forms of energy dealt with by physics. The appearance of complexes in consciousness, and the activity with which their emotions affect associations and judgments and influence volition, depend partly on the total quantity of energy at the disposal of the emotion, and partly on the extent to which it is used up in overcoming resistances which bar the way to consciousness. In dementia præcox both are diminished. How or why the author does not suggest.

He quotes in support of his view tests made by means of a simple apparatus in which the person tested presses a key in response to a stimulus of touch and pain alternately. Normal persons constantly show a prolonged reaction-time to pain, this inhibition being due to the emotion caused by the unpleasant sensation. The cases of dementia præcox showed a shorter reaction-time to pain than to touch, though they all admitted consciousness of an unpleasant sensation. This the author considers to be proof of a diminution of emotional energy, which he regards as the fundamental disturbance of the disease. He points out that all kinds of emotion are present in such patients, but affect only a small part of the personality, while the rest remains indifferent. He explains that the loss is shown more in the social aspects than in the vital and egoistic complexes,

so that autism and a turning from external reality results. He quotes a few cases which seem to him to be explained by his hypothesis.

M. R. BARKAS.

4. Ætiology.

The Need of Housing as a Determinant and as Content in Neuroses and Psychoses [Die Wohnungsnot als auslösendes und inhaltliches Moment bei Neurosen und Psychosen]. (Wien. klin. Woch., November 20, 1924.) Herz, M.

The author had noticed a number of the recent admissions into the Wagner-Jauregg clinic in whom the housing problem seemed to be an important factor; they formed 67 cases out of 4,703 admissions on the female side in the course of 2½ years.

A number of cases of neurosis and psychosis are described. In about a third of the 24 neurotic and psychopathic cases the need of housing appears as a determining cause of the breakdown; in the remainder, fears, depression, suspicions, etc., centred round the housing question. The psychotic cases were chiefly of the paranoid type, in which persecutions were often thought to have been the motive for the driving of the patient from her home. In these the social situation formed the content rather than the cause of the illness, though it seemed to be an ætiological factor in some schizophrenics and melancholics.

Thus a social problem of the day comes to be reflected in the contemporary picture of mental disorder.

M. R. BARKAS.

Dementia Præcox as a Type of Hereditary Degeneration. (Amer. Journ. of Psychiat., April, 1925.) Alford, Leland B.

The multiplicity of ætiological factors ascribed in dementia præcox indicate the chaotic state of our present ideas with regard to its cause. A survey of these ideas shows that they are all based on analogy with the causal factors of better-known disease processes, and it is equally fair to study dementia præcox in relation to other nervous disorders. If we consider the group of nervous affections known as hereditary degenerations or abiotrophies (about 40 are enumerated, but family amaurotic idiocy, Friedreich's ataxia and Huntington's chorea will serve as examples), it will be observed that their chief characteristics are familial occurrence, progressive course and absence of characters belonging to other processes. Where the nervous system is involved the attack seems to be limited by function rather than structure, and where, for instance, lower motor neurons are diseased without nearby structures being affected, the functions affected may include lower and upper motor neuron, extra pyramidal motor, visual, auditory, cutaneous, etc. Again, when the cord and nerves are the seat of the process, pathological changes are definite, but these are found to be obscure when the higher centres are presumably involved, as in Huntington's chorea.

The weight of evidence is in favour of dementia præcox having its basis in organic changes, and so it would seem more hopeful to study its ætiology as one of the group of hereditary degenerations rather than look for a cause in infection, endocrine disturbance or psychic conflict. The high percentage of direct heredity, progressive course and absence of clinical and anatomical features suggesting other disease processes support this conclusion. As in Huntington's chorea, it may be assumed that the particular structures which suffer damage, though here having no detectable sensory or motor function, are important in mental activity. It is the fundamental disorders in dementia præcox, weakening of judgment and initiative, dulling of emotional reactions, loss of energy, etc., which are most significant, and it is remarkable that in every one of the hereditary degenerations enumerated, neurosis, mental deterioration, epilepsy or psychosis are described as sometimes occurring.

In Huntington's chorea we have a motor disturbance which points to the corpus striatum as a site of at least part of the destruction, and yet no definite pathology has been discovered, so that little can be expected from research along histological lines. Heredity, however, presents a much more promising field for research, and further study is required to determine the completeness of the negative evidence in those cases of dementia præcox where direct heredity is not patent, to discover any differences in symptomatology and to find another cause than heredity if such exists. That an acquired trait may be transmitted is here especially pertinent, and the analogy to other hereditary degenerations should be always borne in mind.

A. WILSON.

5. Clinical Psychiatry.

The Pituitary Neurosis of Inability to Concentrate [*Neurosis hypophysaria deconcentrationis*]. (Wien. klin. Woch., November 13, 1924.) Kugler, E.

While many neuroses are associated with a general endocrine dysfunction, certain types of disorder of a ductless gland show each a characteristic neurotic symptom-complex; thus the hyperthyroid neurosis with its definite mental symptoms and its tachycardia, tremors and increased metabolism has long been known; the hypotonic exhaustion state, neurasthenia, may be associated with adrenal dysfunction.

The author defines here a typical neurosis associated with pituitary hypofunction, proving this ætiology by the effects of appropriate treatment. He describes four cases having physical changes associated with pituitary defect, one arising spontaneously, one after influenza, one following syphilis, in another a head wound; in all the cases the mental symptom occurred which he regards as typical, coming on gradually and progressing, and relieved by injections of pitglandol—namely, a progressive loss of ability to concentrate, so that finally it became impossible to follow a conversation,

add up a column of figures, or read a complete page of a book, or, in one case, even a few lines. The relief after a course of pituitary gland injections was complete and lasting. M. R. BARKAS.

On Narcolepsy [Über Narcolepsie]. (Zeits. für die ges. Neur. und Psychiat., March, 1925.) Redlich, E.

The author reviews the 35 definite cases of this condition which have been described in the literature, 11 of which have come under his own observation. He emphasizes the need for a clear delimitation of the group both from the epileptic and hysterical states of "absence" and from the pyknolespy of children.

Clear-cut cases present only two typical sets of symptoms: Firstly the attacks of true sleep, often accompanied by dreams, each lasting at least some minutes and up to an hour, and occurring three or four times in the day with longer intervals. Pyknoleptic attacks differ from this in occurring in rapidly following series up to 100, each a few seconds' duration, and without true unconsciousness or sleep. Narcolepsy usually begins at puberty and lasts for many years or for life, and is not influenced by treatment. Pyknolespy usually ceases spontaneously.

The second symptom peculiar to narcolepsy is the response of the patients to emotion, by a sudden loss of muscle-tone, ending an action that has been begun or even causing the patient to fall down, but with full retention of consciousness. Occasionally involuntary movements replace this loss of tone. Sometimes emotion brings on an attack of sleep.

In some of the cases a nocturnal restlessness accompanies the diurnal sleep tendency, recalling the disturbance of sleep rhythm found in encephalitics. In two cases the condition occurred only during pregnancy. The great majority of the cases are male. Female cases show an increased sleepiness during menstruation. All began at about the time of puberty.

Redlich then attempts to discover the pathology of the condition. A few cases have been examined *post-mortem*, with negative results. Moreover it is much more probable that some functional abnormality is the cause rather than any gross structural change. His general conclusion is that there is probably some increased facility of response of the sleep centre in the third ventricle grey matter, or else some abnormality of endocrine function acting on this. Gelineau suggested that the nervous centres might either receive too little oxygen or utilize it too quickly. A few cases investigated showed abnormal Abderhalden reactions to thyroid, pituitary and thymus glands. The sleep and loss of muscle-tone in response to emotion can be attributed to a similar mechanism, since an increased sensitivity of the third ventricle centres, which are normally concerned with sleep, with the inhibition of tone, and with the bodily responses to emotion, would explain all the manifestations of narcolepsy. It yet remains for research to find exactly what alteration of the centres or of metabolism affecting them is the actual cause of the disorder.

M. R. BARKAS.

Errors in Diagnosis Made by Over-estimation of Catatonic Symptoms
 [Fehldiagnosen durch Überwertung katatonischer Symptome].
 (Zeits. für die ges. Neur. und Psychiat., December, 1924.)
 Becker, Theophil.

In this brief article the author draws on his experience in war pension cases to show that a considerable number of cases were diagnosed during the war as dementia præcox because of the presence of catatonic symptoms, mannerisms, negativism, stereotypy, etc., but recovered completely when the emotional situation leading to this "reactive psychosis" was altered. Many of these proved to be cases of innate psychopathic constitution predisposing them to such a defence reaction. Such cases, he urges, should be considered as due to war service during a first attack, but relapses as due to subsequent environmental difficulties. Many developed on a foundation of a slight degree of feeble-mindedness, and a lowered earning capacity due to such defect should also be considered "not attributable."

He points out that such symptoms in juvenile psychoses should not be regarded as necessarily leading to the diagnosis and bad prognosis of dementia præcox, and that care should be taken not to over-estimate their importance, especially in cases of acute onset associated with strongly emotional incidents or exhaustion.

M. R. BARKAS.

The Judgment of Criminal Responsibility in Psychopaths [Die strafrechtliche Beurteilung der Psychopathen]. (Münch. med. Woch., October 3, 1924.) Wittermann, E.

The author discusses the diagnoses made in his institution in cases judged irresponsible for criminal acts on the ground of insanity and divides them into three groups—those collected by his predecessor before 1907, those in whom his predecessor had given an opinion from 1907 to 1917, and his own from 1918 onwards. In these three groups there is a steady decrease of numbers, that decrease being mainly in psychopathic types of case, while the actual psychoses remained a smaller but relatively constant number.

He then considers what constitutes criminal responsibility. According to the German legal code, paragraph 51, it has to be shown that the accused was, at the time of his misdeed, in a state of unconsciousness or other morbid mental state which interfered with voluntary control. Hence it becomes an important question whether and under what circumstances psychopathic states of degeneration must be regarded as insanity in the above legal sense.

He urges that the attitude taken up on this subject by the medical expert has a wide-spread social effect as to the degree to which psychopathic individuals exercise their self-control; previously when they could easily escape from consequences by pleading insanity, with the hope of a speedy discharge from the asylum, a large number of cases shammed states of amnesia, confusion, delusion, etc., which cleared up speedily when punishment was

evaded. Certain medical experts, by leading questions and emphasis on certain aspects of morbid mentality, even fostered the development of these in the criminally disposed class. On the other hand, since his own adoption of a more rigid criterion of actual insanity and irresponsibility, these psychopathic cases have come to realize that they will have to pay the penalty for their lack of self-control, and have to a great extent adapted their conduct to this situation. A similar effect was produced during the war by the apparently brutal treatment of hysterical cases in special hospitals; when a part of the motivation of the mental disorder was removed, that disorder lessened in incidence.

Psychiatry should not provide a cloak for asocial conduct and irresponsibility, but should inculcate a sense of responsibility in humanity.

M. R. BARKAS.

Present Tendencies in Clinical Psychiatry [Ueber die gegenwärtigen Strömungen in der klinischen Psychiatrie]. (Münch. med. Woch., November 14, 1924.) Bumke, O.

Psychiatry began to be a science in the heyday of Darwinism; disease was referred to vestigial structures and functions, infantilism and degeneration. About 1900 this materialistic, mechanistic concept began to be replaced by metaphysical and romantic elements, and the upheaval of the war increased this swing of the pendulum and its resultant crop of mediums, telepathy and spiritualism. In psychiatry there have resulted many phantastic attempts at interpretation, generally proposing—with some reference to Husserl and phenomenology—a viewing of the mental processes from within (Innenschau), which can be only subjective and cannot be submitted to any objective tests. The attempt to withdraw psychology from the sciences including general medicine and to group it with the arts must fail, since it is indissolubly one with the anatomy and physiology of the organism. Husserl himself insists that phenomenology is a branch of philosophy, not psychology; as a means of investigating the philosophical bases of psychology it has its place; as a means of gaining scientific insight into mental processes it is incapable of scientific testing. Jasper's attempt to use it in this latter way merely amounts to a certain psychological attitude which is coming to the fore in science generally—a study of functions and relationships within a complex system, a psychology which focusses on temperament and character, capacity for reaction, environment and experience. This dominates psychiatry to-day, not merely registering facts, but attempting to seek their origin in the unconscious mental processes. It has its dangers—that subjective interpretation may outpace truth, and conclusions may be drawn from inadequate data. The author's well-known objection to psycho-analysts is not to the observations, but to the interpretations imposed on their observed facts. He discusses Schilder's views, comparing them with Steiner's anthroposophic doctrines as subjectively conditioned. He gives due appreciation to Freud's emphasis on "deep-psychology" and the unconscious, as having

washed away a lot of lumber from the laboratory and desk psychology of earlier psychiatry.

He believes that this tendency to a psychological psychiatry now needs to be supplemented by somatic studies, bio-chemistry, endocrine functioning and metabolism, as well as serology; and he warns us not wholly to abandon the pathological anatomy of the nervous system, in view of the effects of encephalitis on mind and automatic and reflex functions; its teaching may lead to a further understanding of psychotic manifestations, such as catatonia with its resemblance to the striate symptom-complexes.

Another change has come over the clinical side; disease entities with unified pathogenesis, ætiology, anatomy and course were once sought; now we speak of syndromes; Hoche attacked Kraepelin's idea of the disease entity as a mere phantom, as useless as pouring water from one vessel into another. He taught of syndromes, unified symptom-complexes obviously founded on nervous dispositions and made manifest in various groupings by various processes; the epileptic fit is an instance.

Recent studies have dealt partly, as in Kretchmer, with the underlying innate disposition and relations between bodily structure and mental tendencies; partly in developing the psychological study of insanity as a reaction between innate disposition and environment, giving rise to what Birnbaum has called structure of the psychosis and structural analysis. Heredity studies on strict Mendelian lines, investigation of endocrine and autonomic dysfunction as ætiological factors are other important lines of research.

Psychiatric physicians have come to regard the pathology of mental diseases as in the case of other diseases, as a balancing of forces between the organism and the pathogenic cause. No one line, but a blending of all, will lead to ultimate solution of its problems.

M. R. BARKAS.

Narcotism [Narkotismus]. (Wien. klin. Woch., June 18, 1925.) Herzig, Ernst.

This is a general survey of the cases admitted to Steinhof, the city asylum of Vienna, between 1916 and 1924, suffering from drug-poisoning; 47 cases were admitted, 16 of them more than once; the annual number rose from between 3 and 8 up to 1922, to 10 in 1922 and 1923 and 20 in 1924. Most of the cases had taken morphia, 8 cocaine and 7 a variety of drugs.

He discusses the relation between the effects of drugs and an underlying psychotic tendency, and points out that a number of cases showing symptoms suggestive of dementia præcox made a complete recovery when the effects of the drugs had wholly disappeared, though the regained state of the patient often was one of emotional instability.

He does not think that the onset of the habit-formation can be shown to be the result of a psychotic phase, though coinciding in age-incidence with that of dementia præcox, but he finds evidence of a pre-existing psychopathic personality in all his cases, except

where the habit was formed late in life, usually because of some physical or occasional mental stress. The occupational incidence showed 25 per cent. to belong to medical and allied professions.

He advocates complete immediate withdrawal, as he believes that the dangers, even with morphia, are not great, and can be combatted by stimulants, such as digitalis and strophanthin. He is opposed to the substitution of any other narcotics. He believes that the time gained by the immediate withdrawal is of great value in leaving more time afterwards for building up the patient's physical and mental resistance to prevent relapse, but he insists that it can be carried out only in a "closed" institution and with the co-operation of the relatives of the patient. He advocates the provision of special institutions, other than asylums, since drug-taking should not in itself be regarded as insanity. Psychotic states, as a result of the withdrawal of morphia, have not been proved to exist, and where patients have hallucinations he has always found that other drugs, chiefly cocaine, have also been taken.

Regarding legal responsibility for criminal acts committed while under the influence of drugs, he is of opinion that these are usually the result of defective will-power, but that the presence of both narcotic intoxication and abnormal state must be clearly proved. The patient should not be considered irresponsible on account of a drug-taking habit alone.

M. R. BARKAS.

Delirium in Morphinism [Delirium bei Morphinismus]. (Zeits. für die ges. Neur. und Psychiat., March, 1924.) Legewie, B.

That states of delirium are rare in those who take morphia is generally agreed, provided that other drugs can be excluded. Most writers regard them as a result of abstinence, though Bonhoeffer denies this. Hence the author thinks it of interest to describe a case in whom a delirium occurred under conditions almost certainly of a relative morphine deprivation, which was removed by increasing the dose, and reappeared on its diminution, to vanish again with an increase. This seemed to prove that the restlessness, visual hallucinations, fear, confusion, and delusions of persecution were the result of abstinence and not of morphia. The patient was given small doses for a recurring rectal carcinoma, had no craving, and had remained on the same daily dose for several months when the delirium occurred and persisted for about a month, to clear up within a day when the usual dose was doubled. Its appearance is ascribed in part to a general family tendency to hallucinatory states, but the patient, though in some degree psychopathic, had not previously shown any definitely psychotic manifestations.

He then proceeds to discuss the current theories of the action of morphia, its tendency to habit-formation and its abstinence symptoms. He disagrees with the view of Fürer that the latter are the result of exhaustion; he finds the oxidation theory of Marmé and Biberfeld unsatisfactory because he fails to see how a dioxymorphin produced in the body could be immediately counteracted by

administration of more morphine; the intoxication theory of Jastrowitz would lead to the deduction that ultimately fresh doses would fail to counteract the toxic effect of the altered morphine, so that abstinence symptoms would appear while morphine is still being given, whereas this is not the case. He concludes that the most satisfactory explanation, and one based on experimental evidence, is that the effects of morphia are due to an alteration in the function of the nerve-cells of such a kind that their lipoids combine with it to an ever-increasing extent (or possibly adsorb it), and it thus becomes a necessary component to their functioning, so that its destruction produces abstinence symptoms; habit-formation occurs specially in people whose nerve-cell lipoids have an intense affinity for forming this combination, and this may be correlated with the mental peculiarities accompanying such affinity; here the problem of psychopathology is brought into direct contact with organic processes. The brain-cells, as it were, *learn* to combine with and to destroy increasing quantities of the drug, though we cannot reproduce in a test-tube the special physico-chemical conditions which determine this process.

A very full bibliography is appended to this article.

M. R. BARKAS.

A Group of Psychoneurotic Ex-Service Men. (Mental Hygiene, January, 1925.) Ziegler, L. H.

In a group of 162 ex-service men 56 were cases of hysteria, 54 of neurasthenia, 42 of anxiety neurosis and 12 of compulsion-obsession neurosis. The diagnosis was not arrived at until just prior to discharge from hospital.

Observations on family history.—In about 50 *per cent.* of the whole group nothing was found to suggest the presence of nervous or mental disease. In the psychasthenic group only one patient's family history was free from mental disorder. Among the brothers and sisters of the patients, the incidence of psychoses and functional nervous disorders was 46.9 per 1,000 instead of 1.06 per 1,000 amongst the first million recruits. Among the parents of the patients studied, 7.3 *per cent.* had been separated or divorced—a very high rate; 9 *per cent.* of the fathers were alcoholic. In the entire group there were only 6 instances in which the patient was the only child in the family, but there was a tendency for the patients to be the oldest children of large families. They came from a very prolific stock, which showed some evidence of maladaptation and which tended to produce nervous types.

Neurotic traits of childhood.—In about half the cases none of the so-called neurotic traits were elicited. The psychasthenic group showed the greatest number of such traits, and bed-wetting was the commonest.

School attainment.—There was a much higher degree of retardation than acceleration. Anxiety neuroses are usually found in people of ability superior to that of sufferers from the other psychoneuroses.

Sex adaptation.—22.7 *per cent.* denied masturbation. There were

very few of each type who denied heterosexual relations. The anxiety group stood out as having experienced them less than others. About 25 *per cent.* had had venereal infection at some time or another. Marriage was much less frequent than amongst the corresponding age-groups of the normal population.

Occupation.—Pre-war, these patients lost much more time from work than is explained by normal illness rates. They changed jobs more frequently than normal men do. The anxiety group made the most attempt to better themselves, and the neurasthenic group least. Post-war, they were worse than before. The anxiety group again made the most serious attempt to better themselves. There is a strong tendency for the psychoneurotic to enter manufacturing and especially mechanical industries.

Military life.—66·8 *per cent.* enlisted voluntarily; 68 *per cent.* saw foreign service; 44 *per cent.* had some experience of active warfare, the anxiety group contributing most and the psychasthenic group least. The anxiety group contained the highest percentage of commissioned and non-commissioned men.

Development of present illness.—The general strain of war service was the most common cause given by the patients for their disability. Since discharge from military service, the hysteric group had been in hospitals a greater number of times and for longer periods per patient than any of the other groups. Of the entire group 18·3 *per cent.* had major operations for the relief of psychoneurotic symptoms, but in most cases without relief. About half of the complaints of the patients referred to bodily structures; only a small portion of these complaints were based on discoverable organic disease.

G. W. T. H. FLEMING.

Mongolism. (*Brit. Journ. Child. Dis., October–December, 1924.*)
Brushfield, T.

Causation.—(a) Syphilis: This view is still held by Riddell and Stewart, and Lind. Against this is the fact that the Mongol exhibits not a single sign of congenital syphilis. The Wassermann reaction in Mongols—Gordon 1 case in 8, Stephen none in 11, Riddell and Stewart 1 in 55. (b) Contraception has been urged by some. (c) Neuropathic family history: 19 cases had a neurotic heredity, 8 alcoholic and 20 a history of tuberculosis. (d) Amniotic sac: Van Sheer attributes Mongolism to increased pressure during the sixth and seventh weeks of intra-uterine life by an abnormally small and tight amniotic sac. Jansen considers that there are important relationships anatomically between Mongolism and achondroplasia. He says that (i) if the undue pressure acts in the second to third weeks the result is anencephaly; (ii) if the pressure acts in the third to the sixth weeks the result is achondroplasia; (iii) if in the sixth and seventh weeks the result is Mongolism. (e) Mongol's position in the family: Out of 157 cases 29 were firstborn, 69 last-born, and 33 one of the last three. (f) Mother's age: In 64 out of 96 the mother's age was 39 and over, and in 75 out of 96 the father's age was 40 or over. (g) Mother's health in pregnancy: Ill-health,

privation and overwork were marked in 34 *per cent.* of 170 cases. There was a big increase during the war years. The average admissions to the Fountain Hospital of Mongols was almost three times as many during the years 1914-17 as pre-war.

The author then passes in review the clinical characters. No one character except the tongue is characteristic; any single one may be found in other varieties of amentia.

Pathology.—Seven out of eight hearts had a patent foramen ovale. The brain showed reduction in the number and complexity of convolutions. No secondary convolutions existed. The cerebellum was small and exposed. Ratio of cerebellum to cerebrum averaged 1 to 8.47. In the skull Mongols showed increased breadth, shorter occipital fossa and a longer frontal fossa.

Prognosis.—The chief points in prognosis are: (a) The number of deaths associated with inflammation of mucous membranes; (b) congenitally malformed hearts; (c) lack of response to any therapeutic measures; (d) general clumsiness limiting healthy exercise.

The death age in 24 males was $7\frac{1}{2}$, and in 20 females was 6 years.

Among 42 cases which had been transferred to other hospitals, and seen after an interval of 4 years, the author noted (a) all had grown more or less; (b) all were much fatter; (c) all had deteriorated mentally, and were sinking into imbecility.

Thyroid, thymus, pituitary and polyglandin have been administered, with no apparent effects. G. W. T. H. FLEMING.

An Attempt at Biological Diagnosis of States of Excitement and Depression. (*Arch. of Neur. and Psychiat.*, June, 1925.)
Claude, H., Santenaise, D., and Targowla, R.

After studying neuro-vegetative tonus in normal people affected with general diseases and more than 600 psychopathic persons, these authors have arrived at certain conclusions which they claim are absolutely homogeneous.

Manic-depressive psychosis.—The beginning of the attack is often marked by headaches, poor appetite and constipation; the pulse is rapid and the blood-pressure reduced; mydriasis and pupillary inequality reveal a special condition of the tonus of the iris musculature; secretions are nearly always increased, especially salivation and sweating. In the hours preceding the paroxysm, leucopenia with inversion of the leucocytic formula occurs, resembling Widal's hæmoclastic shock. After examining more than 200 patients in this group, they found: (1) The anxious or maniacal paroxysms are characterized by a considerable hyper-excitability of the vagus, with a relative hypo-vagotonia during the intercalary periods. (2) Intense oculo-cardiac reflexes are frequently to be observed during paroxysms, the rhythm changing from 80 to 20 or even less. Simple compression brought an immediate decrease in the pulse-rate, which often stopped for 6 or 7 seconds and sometimes a tendency to syncope. (3) The solar reflex was generally absent or inverted. (4) Reactions to pilocarpine and eserine were

marked. During a paroxysm large doses of atropine must be used to paralyse the vagus. Suprarenal extract was well tolerated. (5) During paroxysms the digestive hæmoclasia test is always positive. The hæmoclastic cycle was completed in less than 30 minutes. (6) There was a remarkable tolerance to carbohydrate, even up to 300 grm.

The end of the intercalary period was always marked by a progressing increase of parasympathetic excitability. Vagotonia often preceded the attack by several days. By these means it is possible to foresee the appearance of an attack when there was nothing clinically to indicate it.

Epilepsy.—Between the fits they found either parasympathetic hyperexcitability or hypo-vagotonia. With exaggeration of the oculo-cardiac reflex there was often considerable variation in the reflex. There was an inverted solar reflex, rapid and often intense digestive hæmoclastic reaction, and sharp reactions to pharmacodynamic agents like eserine and pilocarpine. Atropine and suprarenal extract were well tolerated. Glucose tolerance is marked, often being more than 200 grm. With other epileptics, particularly those having few fits or periods of fits, there was often hypo-vagotonia or even sympathicotonia in the intervals. The oculo-cardiac reflex was absent or inverted: leucocytosis was always noted after a milk meal. There was great sensitiveness to suprarenal extract and atropine. Sugar tolerance was not high, and there was often alimentary glycosuria after 100–120 grm. of glucose. The appearance or exaggeration of the parasympathetic excitability enabled the occurrence of a fit or equivalent to be foreseen. At the very beginning of the fit there were volleys of extrasystoles and cardiac contractions, spontaneous leucopenia, with an inverted leucocyte formula, and signs of peripheral vaso-constriction. In the moments immediately following the fit there was an inversion or a tendency to inversion of the neuro-vegetative tonus.

Emotionally unstable patients.—There were hypersympathicotonia, tachycardia, intense reactions to adrenalin and atropine.

Mental degeneracy.—The observation of more than 150 patients of this kind showed a real neuro-vegetative dysfunction, which served as an organic basis for outbursts, impulses, etc. (a) Delusional outbursts—always accompanied by considerable vagotonia. There was also hyperexcitability of the sympathetic, especially in the outbursts of passionate type. (b) Obsessions, impulses, and phobias: there was hypertonicity of both systems. (c) Intermittent perversions: there was hypervagotonia, sometimes hypersympathicotonia. (d) Toxicomania: the symptoms of neuro-vegetative imbalance increased considerably during the withdrawal of the drug, which was accompanied by marked hypertonicity of the vagus, and often by the appearance of the solar reflex.

Paraphrenia.—The reactions resembled those of normal people.

Mental confusion.—There was an inversion of the neuro-vegetative system. When the toxin has been eliminated the tonus returns to normal.

Asthenia.—There was atony of the neuro-vegetative system.

There were two types: (a) Those whose asthenia was generally transitory with a favourable prognosis react slightly to pharmacodynamic agents. (b) Those in whom the neuro-vegetative system remains atonic despite the use of pharmacodynamic agents.

Dementia præcox.—In hebephrenia and hebephreno-catatonias there was always atony of the neuro-vegetative system which was irreducible. This syndrome was also observed in three cases of post-encephalitic dementia præcox.

Commenting on these findings, the authors divide the psychoses according to their neuro-vegetative reactions into five categories: (a) Those with hypervagotonia; (b) those with hypersympathicotonia; (c) those with hypertonicity of both; (d) those with normal neuro-vegetative reactions; (e) those in which the reactions are absent either transitorily or permanently.

States of excitation.—In the presence of a state of excitation, one may consider—

1. A state of true maniacal excitement, belonging to the manic-depressive group, for which one can foresee recovery from the attack. In this case one will invariably find distinct hypertonicity of the vagus unless there is a marked alcoholic influence, when the results may be hidden for several days because of the reaction of the organism to the intoxication.

2. A state of excitement linked with an emotional process, as in mania with anger. One finds then solely a hypertonicity of the sympathetic.

3. A state of excitement linked with an intoxication: (a) In drug addicts before withdrawal the neuro-vegetative reactions are absent, but the reflexes appear strongly as soon as the drug is stopped. (b) In the acute and subacute forms of alcoholic intoxication reflexes are absent, but they reappear as soon as the confusional state ceases. (c) In psychoses due to endogenic intoxication the reactions are of the same order.

4. A state of excitement in dementia præcox. In this case the neuro-vegetative system presents a complete and irreducible atony.

The problem of the diagnosis of states of excitement is often complicated by the existence of a number of added delusional ideas:

(a) In intermittent maniacal attacks ideas of influence are often observed, as Logre and Heuyer showed; in these patients the oculo-cardiac reflex is strongly marked, the solar reflex is generally inverted, and the sugar tolerance is high. (b) In degenerates the delusion formation is known often to be accompanied by a state of excitement; in such cases they observed a distinct hypertonicity of the sympathetic. (c) In dementia præcox the polymorphous, unsystematized delusional states are also extremely frequent, but here the neuro-vegetative reactions are absent.

They were able in certain cases to make a diagnosis based solely on biological findings, even when the clinical signs were rather in favour of a different diagnosis. Later evolution always demonstrated that they were right.

States of depression.—In the presence of a simple state of depression without delusional ideas one may think of—(1) a state belonging

to the manic-depressive psychoses. In this case the hypertonicity of the vagus was characteristic. (2) A confusional state. Here the reflexes were not marked, but they reappear when the causes of intoxication disappear. (3) Temporary asthenia: in this disorder the vago-sympathetic reactions were not marked; they appear after the use of pharmacodynamic agents. (4) Dementia præcox, particularly of young people; the atony of the neuro-vegetative system was irreducible.

States of anxious agitation.—When the dominating symptom is an anxious agitation with or without delusional ideas the case may be—(1) a depressed or a maniacal state belonging to the manic-depressive group; (2) a state of emotional instability with hyper-sympathicotonia; (3) a confusional state; (4) an episodic symptom of degeneracy—obsessions, impulses, phobias; (5) dementia præcox.

To each of these states there is a corresponding vago-sympathetic formula. To depression and anxiety are often added delusions. They may occur—(1) in intermittent insanity: delusions develop consecutive to a moral grief. (2) In affective depression: the delusions are linked to a state of anxiety of psychogenic origin, and develop on a soil of hypermotivity and hypersympathicotonia. (3) In degenerates: here one can find delusional formations with depression in the course of the outbreaks and of the various episodic syndromes. (4) In dementia præcox: patients frequently show delusional ideas of a melancholy type.

In these different forms diagnosis and prognosis can be facilitated by the examination of the neuro-vegetative tonus. In a depressed patient who has apparently given up his delusion, the finding of a sharp solar reflex would lead one to apprehend anxious reactions with attempts at suicide.

Conclusion.—The authors relied mostly on the oculo-cardiac and solar reflexes. In applying the alimentary glycosuria test of Lewis and Benedict, the authors gave 1·8–2 grm. of glucose per kilo body-weight. If this is tolerated the patient is vagotonic. The test is repeated up to the limit of tolerance.

G. W. T. H. FLEMING.

A Study of Memory Deterioration in Encephalitis Lethargica. (*Journ. of Nerv. and Ment. Dis.*, April, 1925.) Bebb, Grace L.

The special memory test for psychotics devised by Dr. F. L. Wells, of Boston, was given to 21 patients suffering from the residua of encephalitis lethargica. All, with one exception, gave excellent co-operation, being obviously interested in the tests. There was a general slowness of movement and response. The author concludes that, judging from the average scores of each of the tests, there seemed to be a memory deterioration. There was greater difficulty in tests of remote memory, in the substitution test, the paired association test, giving of the digits backwards, and in the test of recalling unrelated objects. The duration of the patient's illness apparently has no effect on memory deterioration. The slowness of movement seemed to be the most marked feature.

G. W. T. H. FLEMING.

Schizoid and Syntonic Factors in Neuroses and Psychoses. (Amer. Journ. of Psychiat., April, 1925.) Brill, A. A.

Variations from orthodox psychotic types, such as the dementia præcox and manic-depressive group described by Kraepelin, have long been recognized, a patient showing characteristics of both diseases. An apparent catatonic case may at other times be normal to all intents and purposes or even slightly maniacal. In private practice many of these cases are diagnosed as psychoneurotics. They do not clearly show the features, and since the wider recognition of the Freudian concept of the narcissic neuroses, a class of such patients, approaching more nearly to the dementia præcox or paranoia than to any other type, has been described by the author as paraphrenics. In the ordinary walks of life there are many people who present a well-marked præcox or paranoid type, some even playing a prominent part in society. Others, at first typical hysterics or compulsion neurotics, later become cases of dementia præcox. The fact is that everybody presents some type of character reaction in terms of the psychoses, and in daily life manic, præcox and mixed types may be discerned.

The question arises as to what are the fundamental reactions in these atypical cases? Why do some patients change from psychoneuroses to psychoses? Why do ordinary individuals manifest preponderately maniacal or præcox reactions? Is there anything common to all of them and can psycho-analysis throw any light on the problems.

Bleuler thinks that both syntonic and schizoid types of reaction can be demonstrated in every individual, who is neither exclusively one nor the other. The syntonic is an obviously normal and healthy person, a social being *par excellence*, harmonizing with his environment, and at the same time his feelings agree internally, influencing his thoughts and actions. He is entirely controlled by the existing affect. The schizoid, in every-day life, preserves his independence to the environment, strives to change reality to suit his own ends or turns inwardly to himself. He can connect his affect symbolically with other impulses, displace it to excess or sublimate it to higher aims. He is the true psychologist, genius, reformer, inventor, prophet or leader of men. Men as a class have milder syntonic qualities than women, which is said to account for the fact that cultured progress is almost entirely due to the male, and also that the relative incidence of manic-depressive insanity is twice as great in women.

While both reactions exist in every person one or the other predominates, and if in predisposed individuals one of them becomes markedly enhanced, the result is a psychosis of either type. Thus if a person shows a maniacal attack, it means that the syntonic components predominate qualitatively and quantitatively to a morbid degree. The schizoid components may also exist and mix with the syntonic in any sort of proportion, so that a maniacal or melancholic patient may show paranoia and schizophrenic trends. Depending on the degree to which the other type is present we

speak of a typical schizophrenic, a typical manic or of mixed types, and Bleuler questions whether it is even necessary to differentiate between the two. Hence, too, a paretic or senile case may act like an expansive maniac or a paranoiac, and an apparent neurotic becomes a psychotic; it all depends upon the degree of schizoid or syntonetic reactions that they possessed throughout their lives.

In respect to the psycho-neuroses it will be found that they are preponderatingly schizoid. Though they may never become schizophrenics they always manifest deep schizoid trends and a guarded prognosis is advisable. Most neurotics are latent schizophrenics, and the compulsions and so-called neurasthenias are also manifestations of schizoid mechanisms. Obsessions, phobias and hysterics remain schizoid in their reactions even after making excellent recoveries under psycho-analytic treatment.

Psycho-analysts have known these reactions under different names, and translating schizoidism and syntonity into Freudian terms, we can say that every transference neurotic has also a fragment of narcissistic libido, and depending on the quantity and perhaps quality he is either a frank transference neurotic, a mixed type, or so deeply narcissistic that he cannot be influenced by any treatment. We still have to find why one schizoid reacts as a compulsive neurotic or hysteric and the other as a schizophrenic, and only by studying the cases analytically can we hope to come to the nucleus of the questions involved.

A. WILSON.

6. Treatment.

The Treatment of Morphinism [Über die Behandlung des Morphinismus]. (Münch. med. Woch., November 7, 1924.) Hösslin, R. v.

It is pointed out that this is one of the most difficult tasks in medicine. Whereas many patients have no tendency to habit-formation when given morphia, others form a habit readily; this is ascribed to a specific readiness of the brain-cells to combine with morphia, with a resultant alteration of their functioning, and also an increased ability of the organism to destroy the drug; these factors give rise to the need for ever-increasing dosage and to the development of abstinence symptoms. Clinical experience shows that this tendency to habit-formation occurs in mentally unstable persons, who have little power of resistance to physical or mental pain and a defective capacity for sleep, who seek relief and restoration of energy in drugs and readily become dependent on such relief, which is given only by increasing doses.

Regulation of the sale of morphia is unsatisfactory and the drug can usually be procured by *habitués*. A great difficulty in treatment is the legal one that patients cannot be detained for cure against their will for a sufficient time to reduce to a minimum the risk of relapse.

A detailed account is given of the precautions necessary for treatment, which can only be given satisfactorily in a "closed

institution" or asylum; the cunning of the *habitué* in hiding supplies or procuring them in disguised forms and the need for trustworthy nurses are strongly emphasized. The author prefers a gradual withdrawal to a sudden one, and gives three doses a day at the start, reducing the night dose last. He advocates giving large doses of sodium luminal subcutaneously so as to tide the patient over the abstinence symptoms by keeping him in a state of twilight sleep, and gives also camphor and caffeine injections to overcome the feeling of prostration. Finally he insists on the need for several weeks' strict watching after the complete withdrawal of all hypnotics, and for a period after this requires that the patient shall again submit to 48 hours' strict isolation every 8 to 10 days. Refusal to being searched will suggest a bad conscience, the process being repeated every three months for a further period.

For other drugs than those of the opium series he advocates immediate withdrawal, as the abstinence symptoms are less severe and prolonged.

He is in favour of compulsory legislation for the treatment of drug cases, and does not make any suggestion of psychotherapy or attempt to gain the patient's co-operation otherwise than that involved in submitting himself to restraint and restrictions. M. R. BARKAS.

Morphinism [Über Morphinismus]. (Münch. med. Woch., July 4, 1924, p. 893.) Wuth, O.

Therapeutic remarks: The treatment of morphinism is primarily that of overcoming the abstinence symptoms; generalizations should not be made, but each individual should be treated according to his special constitution. Patients complain that the usual sedative drugs do not allay the symptoms but merely add to them a feeling of stupefaction. Chloral hydrate is especially to be avoided, as it often has a paradoxical action and produces states of excitement. Alcohol has the same objection as to unpleasant after-effects. Scopolamine and atropine are generally to be avoided, and given only if sweating, salivation and motor unrest predominate; and they often fail to remove these. Antipyretics, baths, fresh air, venesection and "protein shock therapy" have given good results, probably through their action on the autonomic system. Intravenous cholin has been found useful by Klee and Grossmann, but is still in the experimental stage. Various endocrine products and drugs acting on the autonomic system should be tried with due consideration of the individual's special modes of reaction, while the general narcotization of the autonomic system by antipyretics or by small doses of morphia during gradual withdrawal should not be neglected.

M. R. BARKAS.

The Use of Twilight Sleep in Insanity [Die Anwendung der Dauernarkose bei Geisteskranken]. (Münch. med. Woch., October 17, 1924.) Wiethold, F.

The author gives a general survey of the treatment with somnifen introduced by Kläsi and now widely tried. His general conclusion

is that it has been shown to be effective and useful in some cases where other remedies have failed, but that it has distinct dangers which cannot always be foreseen, that it fails to benefit many cases, and that other drugs may usefully be administered with less danger.

He advocates the use of rectal injections of a mixture of paraldehyde and hyoscine in doses adequate to maintain a state of twilight sleep (1-2 mgrm. hyoscine and 5-10 grm. paraldehyde). These can be given over long periods without ill-effects. The hyoscine lessens motor excitement, while paraldehyde inhibits the sensory stimuli, and the combination seems to have beneficial effects on the whole mental mechanisms of the psychotic state. It has been found particularly valuable in deliria, acute excitement, whether catatonic, maniacal or hallucinatory, and in epileptic furor and *status epilepticus*. In the last the attacks are often quickly stopped. He illustrates the method and its results by details of one case of confusional psychosis following influenza in a patient who had had two previous attacks of a similar kind. He emphasizes the especial benefit of this treatment in the earliest stages of such an illness, since rapid recovery precludes the tendency of a more gradual cure to produce lasting injury to the personality from a persisting memory of the psychotic manifestations of suspicion and anxiety. He thinks that the removal of memories of the delusional and hallucinatory experiences thus produced may prevent the development of a chronic delusional state with systematization. The twilight sleep treatment benefits body and mind alike.

M. R. BARKAS.

Somnifen Twilight Sleep in Psychiatry [*Die Dauernarcose mit Somnifen in der Psychiatrie*]. (Zeits. für die ges. Neur. und Psychiat., May, 1925.) Müller, M.

This is a lengthy general review of experiences and published results of the treatment in the various psychoses. The conclusion drawn is that the principle of twilight sleep has definitely established its place in the psychiatric armament, chiefly for cases of emotional variation, manic depressive cases and schizophrenic states of agitation. Catatonic negativism is not generally improved as Kläsi originally believed. It is also useful in status epilepticus and in drug cures. Somnifen, however, is a dangerous drug with a mortality of about 5 per cent.; its lowering of blood-pressure and the individual variations in its effects which cannot be predicted are the chief drawbacks. Further investigations are needed to find what will prove the best means of producing the state of twilight sleep, but the utility of this prolonged sleep in itself is undeniable, and is merely an application to the nervous symptom of the general principle of providing rest for the injured or diseased organ which has been a guiding line for treatment of most forms of disease or injury. Until a better method is found, somnifen, given with due precaution, provides a means by which twilight sleep can be produced, but its dangers must always be borne in mind.

A full bibliography of the subject is appended.

M. R. BARKAS.

On the Treatment of Morbid Impulses and Compulsions with Re-education through "Distraction Therapy" [*Über die Behandlung der krankhaften Triebe und Zwangszustände mit Neuerziehung durch Ablenkungstherapie*]. (*Zeits. für die ges. Neur. und Psychiat.*, December, 1924.) *Bechterew, Prof. W.*

The author begins by dividing "reflex psychotherapy" into five categories: (1) Suggestion in the hypnotic or in the waking state; (2) treatment by training (Dejerine); (3) the rational therapy or persuasion of Dubois; (4) Freud's psycho-analysis; and (5) the treatment by means of ideas of Marzinowsky. He calls the last three forms "higher psychotherapy." He discusses the advantages and disadvantages alleged for each by their supporters and opponents, and points out that only long years of collecting accurate data can prove the ultimate value of each. His own view is that there should be no clinging to one, excluding others, but that each practitioner and each patient must apply whatever methods appear best suited to the individual in the particular case.

He then proceeds to state his own findings in the treatment of compulsions and habits; he believes that in such cases no one method alone will suffice, but that the problem is essentially one of re-education of the higher reflexes. He holds that one aspect is inadequately considered in all the methods in use, namely that of concentration; this reinforces the morbid manifestation, and it is this that pre-eminently needs to be removed. The symptom is a sort of fixed conditioned reflex; through it attention becomes automatically attached to the compulsion, and all attempts at abstention from carrying out the compulsive act merely reinforce the concentration and compulsive force of the habit. Hence treatment must be directed to the distraction of attention from all that is associated with the compulsion, and to attaching such attention to more normal outlets.

He advises the following procedure: Firstly to investigate and make known to the patient the first stages of the development of the habit, and to explain that it was acquired, not inherited, and is therefore curable by psychotherapy. He considers it justifiable to strengthen the "will to cure" by pointing out the harmfulness of the habit, provided that a firm conviction is given of the possibility of cure. He then gets the patient to relax and place himself in a hypnoidal state, in which he should be fully conscious, but should concentrate on the idea of sleep to remove distracting thoughts. Suggestions are then given that he should not concentrate on the habit, but that he should avoid everything associated with it, that he will find satisfaction in abstaining from it, and that by such distraction of his attention from it he will feel progressively better; at the same time substitute gratifications are suggested, such as that of sweets for smoking, of mineral waters for alcohol, of sport for masturbation; the substituted outlets being appropriate to the particular habit. Suggestions are also given that self-conquest will banish the anxiety associated with the habit. Reasons are given why it need not give rise to

anxiety, varying in nature with the individual case. The author adds that he believes such anxiety symptoms, though of psychogenic origin, arise on a foundation of metabolic and endocrine dysfunction, which needs further study, and that the emotional disturbance in its turn adds to such dysfunction; hence treatment must include such drugs, diet or physico-therapy as may be appropriate. By such methods it may be possible to alter the morbid reflex and remove the underlying disposition to the formation of others of a similar kind.

In discussing the investigation of the first stages of the habit-formation, he suggests that psycho-analysis is unnecessary and useless if these are intellectually known to consciousness. (This is, of course, incorrect, since mere intellectual knowledge does not remove the compulsion. His methods may often be useful, but cases which do not yield to them may yet resort hopefully to analytic treatment).

M. R. BARKAS.

7. Pathology.

Blood in Personality Disorders. (*Arch. of Neur. and Psychiat.*, June, 1925.) Henry, G. W., and Mangam, E.

These authors examined the blood of 200 consecutive admissions for carbon dioxide combining power, and found it unaffected unless there is some underlying physical disease. Determinations of the urea nitrogen of 143 cases gave negative results. Further studies of the non-protein nitrogen, uric acid, dextrose and chloride content of the blood gave negative results. Glucose tolerance tests showed more or less characteristic changes in the glucose content of the blood of patients in either phase of affective psychoses and in the acute stages of dementia præcox. These changes indicate a definite retardation of functions of the vegetative nervous system in manic-depressive depression and in the acute stages of dementia præcox, and an acceleration of these same functions in manic-depressive excitement.

G. W. T. H. FLEMING.

On Dysoxidative Carbonuria [*Über dysoxydative Karbonurie*]. (*Zeits. für Arztl. Fortb.*, August, 1925.) Bickel, A.

Attention is drawn here to a series of conditions in which the proportion of carbon in the urine is increased as a result of defective bodily oxidation processes. The carbon in the urine appears in nitrogen-containing substances, such as urea, amino-acids, and creatinin, and in nitrogen-free bodies, such as carbonates, oxalates, and a dextrin-like carbohydrate; in diabetes also as dextrose.

In normal individuals on an ordinary mixed diet and with moderate exercise the 24-hour excretion is roughly in the following proportions:

	Through kidneys.	Through lungs.	Through skin.	Through intestine.
C	10 grm.	270 grm.	2.3 grm.	3.0 grm.
N	15.6 „	0 „	traces	0.9 „

Thus the ratio of C/N in the urine is approximately 0.6–0.7. An increase of fat in the diet does not alter this much, but a diet consisting chiefly of carbohydrate raises the quotient to 0.9, since an overloading with carbohydrate leads to incomplete oxidation to CO_2 .

Under pathological conditions there may be an increase of the carbon-containing nitrogen bodies or other carbon compounds. Disorders of the carbohydrate metabolism are important here. In diabetic urine, even after the removal of glucose and acetone bodies, the C/N quotient is found as high as 2.0, probably from the presence of glycuronic and oxalic acid and their salts. The author has also found a raised C/N quotient in conditions of avitaminosis, which he regards as pre-diabetic, and where there is also a lowered utilization of oxygen in the lungs, though reducing carbon derivatives do not appear in the urine. He suggests that these conditions of *non-glycosuric dysoxydative carbonuria* deserve further clinical and pathological investigation. Vitamin deficiency is only one of them; various endocrine and metabolic disorders, wasting and obesity, polyneuritis, tendency to boils, etc., may come under this head. He adds that the restoration of a normal C/N ratio by the injection of insulin has been found an aid to diagnosis of such abnormalities.

Details of his method of determining the ratio are not given, nor are there any references to published work. M. R. BARKAS.

The Carbophosphides and their Reaction on Blood-serum [Della Carbosfosfide e della sua azione sul siero di sangue]. (Rendic. della R. Accad. Naz. dei Lincei, Roma, 1923.) Three notes by Cuneo, Gerolamo.

(1) The first paper describes the method worked out by the author for preparing the substance carbophosphide, in which the N of urea is replaced by P. He passes gaseous hydrogen phosphide through a toluene solution of carbon oxychloride, when a yellow insoluble substance forms (CO_2PH_4). It cannot be completely purified, being wholly insoluble, and is probably a polymeric form of the carbophosphide, though the molecular weight could not be determined. Its analysis corresponds well, allowing for some impurity, with the above formula. Its action on blood-serum is of interest; a gradual reaction occurs when about 0.4 per cent. is added to centrifuged and filtered serum, and kept at a constant temperature of between 38–40° C. The serum does not decompose even after a month, but within two days there begins to form an opaque flocculent white precipitate, and the alkaline reaction of the serum becomes faintly acid. At the end of 12 days all the albuminous substances are precipitated and the precipitate of carbophosphide and phosphoalbumen is treated with dilute potash, which dissolves the latter, so that it can be re-precipitated by acetic acid and thus purified. This albuminoid contains phosphorus in organic combination and has a smell like ozone. A solution in sodium carbonate injected subcutaneously or intraperitoneally in dogs produced a rise of

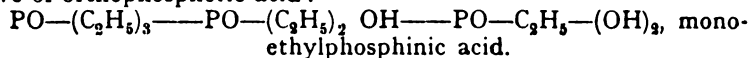
temperature. It differs from the serum proteins in resisting digestion with gastric juice or putrefaction, and may be regarded as a nuclein, and its synthesis here throws light on the formation of nucleoproteids by enzyme action in the body. The author has also tried to prepare the compounds in which the O of the carbophosphide is replaced by S and by N, but these results are incomplete.

The therapeutic effect of carbophosphide was tried at the Genoa University medical clinic; it can be given without ill-effects in larger doses than zinc phosphate, and given over some months produced no signs of phosphorus poisoning; it combines in the digestive tract with albuminoid substances, improves the appetite, inhibits gastro-intestinal putrefaction, and in a number of epileptics reduced the number of the attacks, but the difficulties of its preparation and purification make it unprocurable for medical use.

(2) A short note showing that the phosphorus in this phospho-albumen is contained in organic combination, gives the typical reaction of nuclein bases with ammoniacal silver nitrate, mercuric chloride and picric acid after hydrolysis with sulphuric acid, and must be regarded as formed by a molecular change of the serum proteins, in which phosphorus enters their molecules as a hydration product of phosphoric anhydride, and the albuminoids take on acidic properties.

(3) Here the author reports the results obtained by the action on blood-serum of a series of substances, some with and some without phosphorus; two series of results were obtained. In one group, chiefly those acting quickly, such as solid hydrogen phosphate, phosphorous acid, red and yellow phosphorus, phosphoric anhydride and phosphorus tri- and pentachlorides, ferrous iodide, sulphuryl chloride and iodic acid, the serum albumens underwent no molecular change; only acid-albumens were formed, remaining capable of putrefaction or digestion by gastric juice. The second group reacted slowly and gave quite different results: phosphorus bi-iodide, mono-ethyl phosphine and sodium hypochlorite.

Phosphorus bi-iodide, PI_3 , with blood-serum gave rise to a white opaque powder, resisting gastric digestion for three days, probably being an albuminoid produced by an oxidation of the serum albumen. Phosphene PH_3 , gave a mono-ethylphosphine PH_3 , C_2H_5 boiling at $25^\circ C.$, which acts on serum like phosphorus bi-iodide, the reaction becoming acid, and a white albuminoid being precipitated which is no longer serum albumen, but is acid, and is not digested by gastric juice. In all probability this oxidation is analogous to that of phosphene to phosphinic acid which may be regarded as a derivative of orthophosphoric acid:



In both cases the group PH_3 produces the phenomena of auto-oxidation in the presence of auto-oxidizable substances.

Considering the reactions from a general point of view, he sees in the change from serum-albumen into the new albuminoid, not a special action of iron or phosphorus, but a general process of

oxidation, which leads him to think that the peculiar properties of nucleoproteids of being the carriers of oxygen does not reside in the presence of iron or phosphorus in them, but in the new structure of the protein molecule produced by oxidation. He regards the production of phospho-albumen by the action of carbophosphide on blood-serum as a phenomenon of auto-oxidation, and finds that sodium hypochlorite produces from blood-serum a substance with the chemical and biological qualities of nucleic acid, containing neither iron nor phosphorus, which the author will describe in another paper.

M. R. BARKAS.

Negative Histological Findings in Experimental Organic Processes.
(*Amer. Journ. of Psychiat.*, April, 1925.) Orton, S. T.

The writer calls attention to the fact that pathological processes acting on the nervous system do not always cause visible alterations in the nerve-cells, and that therefore the absence of clear-cut structural lesions in a given disease by no means excludes an organic ætiology. In support of his point he quotes four groups of experiments on animals which died as the result of artificially induced organic disorder to their central nervous systems, these being afterwards subjected to careful histological examinations by an extensive range of methods. Though in all groups variations from what was considered normal were found, there were no changes which were consistently absent from the control animals, none which were consistently present in the experimental material, and none which were in harmony with either the severity or duration of the clinical pictures. Much of the material was submitted to Alzheimer, who confirmed that the results were negative.

The extreme delicacy of the nerve-cell structure destroys any hope that technical improvements in histological methods will ever prove of much value. It is fair to conclude that quite different chemical requirements exist for the maintenance of the neuron's structural integrity and for the maintenance of normal function—that the neuron may be structurally sound but abnormal in function. Further, very little is known of the actual chemical nature of proteids and lipoids which constitute cell cytoplasm, and yet we believe that chemical or physical differences in the constitution or proportion of these substances underlies all the functional disturbances of the various parts of the central nervous system. There is good evidence for the belief that alterations, sufficient to disturb function, take place in these complex substances before they become so coarse as to be demonstrable histologically. For example, in the catabolic disintegration of lipoids in fatty degeneration it is probable that function is disturbed long before stainable particles appear in the cell.

Because some psychoses show such obvious pathological changes, we are not justified in concluding that negative findings in a disease such as dementia præcox exclude its organic origin. Even by the methods available to-day it is not safe to draw conclusions as to the structural integrity of the brain unless representative examinations

are made of all the nervous tissues which collectively constitute the cerebral cortex—and this means enormous technical difficulties. However, this should not deter further efforts along the lines of organic approach.

A. WILSON.

8. Mental Hygiene.

Some Preventive Aspects of Psychiatric Work. (Glasg. Med. Journ., May, 1925.) Henderson, D. K.

The author, after quoting an illustrative case of early dementia præcox, laments the fact that general practitioners so often, in discussing nervous and mental diseases with their patients, advise them that they must on no account think of the necessity of treatment in a mental hospital, and often, too, prejudice them against adopting such a course by emphasizing that the illness is not mental, but of a purely nervous or borderline type. Mental disorder is the one subject about which the average medical man confesses sublime ignorance without a qualm. The question ought to be not so much is the patient sane or insane? but would he or she be benefited by treatment in a mental hospital? In dealing with the subject of alcohol, Dr. Henderson points out that in 1923 the average expenditure per head per annum on alcohol was £7 2s., and in the same year, 930 million gallons of beer were consumed, compared with 800 million gallons of milk! The amount of money spent on drink was more than the aggregate amount spent on Imperial defence, education and national health, including unemployment insurance. He pleads for a greater study of the individual in the functional psychoses and less a study of the disease. He emphasizes the need for psychiatric clinics in connection with general hospitals, with a good out-patient department and social service department. Failing this, a psychiatric out-patient department at a general hospital ought to least to be attempted. As an example of the class of case seen at the psychiatric out-patient department of the Western Infirmary, Glasgow, the author quotes the cases coming under mental deficiency. In this group were found children who had been backward at school, and others who had shown disorders of conduct, and had been looked on as defective, when the defect was really due to some lack of training. There were also cases of young adults, who had a superimposed neurotic or psychotic condition developed on a defective basis. In connection with epidemic encephalitis, the author emphasizes the difference between adults and children affected by the disease. The children closely resemble moral imbeciles and atypical demented.

Social service workers, unless carefully trained, are apt to be a danger, because they persist in interfering in the medical work.

In concluding, Dr. Henderson deprecates the fact that medical students without any training in psychology study mental diseases, and wonders what would happen if students without knowledge of anatomy and physiology studied medicine and surgery?

G. W. T. H. FLEMING.

Further Studies in the Psycho-Sexuality of College Graduate Men.
(*Mental Hygiene*, July, 1925.) Peck, M. W., and Wells, F. L.

This is a further instalment of the work which has been published in previous issues of the above-named journal. The basis of the present research is the answers received to a questionnaire sent out to American men college graduates. The subjects of the inquiry were mostly of ages ranging from 22 to 27 years, and nearly all belonged to the professional and the wealthier business classes; this latter fact has to be kept in mind, when interpreting the results of the research. The questionnaire contained 112 items, dealing with general personality as well as specifically with sex relations. There are, probably, some interesting correlations, which the authors promise to work out in detail.

Asked at what age their principal information as to sex matters was obtained, over 50 *per cent.* assigned an age previous to that of puberty (taking that period at 14 years), while 16.5 *per cent.* did not get such knowledge until the age of 18 years or over. Nearly 60 *per cent.* obtained their knowledge from companions or from books, the former source decidedly preponderating. But the vast majority were of opinion that this casual mode of acquiring such knowledge was bad, and favoured specific instruction, most of them indicating the father as the proper person to impart such information.

As regards extra-marital sex intercourse, 37 *per cent.* admitted this, while 59 *per cent.* denied it. It is probable that these figures may be regarded as accurate, and they contradict the exaggerated estimates, often given, of the frequency of pre-marital intercourse among young men of the college class. Further analysis of the ages at which such intercourse first occurred indicates that if such contact has not been established at an age approximating 21 years, the chances are considerably lessened, for this group of subjects, that it will be established extra-maritally in later years. The replies lend colour to the view that these contacts are relatively opportunistic, and they do not suggest independent seeking of gratification in response to a coercive urge. Probably a leading feature is the invitation of some more mature woman. Prostitution, however, seems to have only a minor influence; a marked majority denied all dealings with prostitutes, although the implication of that term was strictly defined. The incidence of venereal disease was very low, only one-seventh of the exposed group having contracted gonorrhœa, while syphilis had not occurred at all. The small number who had connection with prostitutes has to be remembered. Whether recent greater liberty in social acquaintance between the two sexes, in this class of society, has made a difference in this respect, would form an interesting subject for speculation. Only 14 *per cent.*, however, admitted that mixing socially with "better-class girls" had any tendency to increase their sexual impulses. The conventional view, that contacts of this kind decrease specifically sexual impulses, has to be kept in mind when interpreting these particular figures. "Minor love-

making," and the reading of modern fiction containing realistic love scenes, were reported by many as definitely increasing sex impulses. Only 3·5 *per cent.* denied masturbation at some period of their lives. Definitely homo-sexual feelings were admitted by 12 *per cent.*, but in only 3 *per cent.* did actual physical contact contribute to this.

M. HAMBLIN SMITH.

9. Mental Hospital Reports.

City of London.—The event of most importance in this institution during the year under review is the unfortunate ill-health of Dr. Steen, whose devotion to the Hospital as its Medical Superintendent has been such a marked feature for so many years. It is now known, of course, that this illness has culminated in his retirement, and all members of this Association, to which he also gave unsparing work and energy, will recognize the great loss a man of his personality must be to an institution, and will hope that relief from his anxious and trying duties will so ameliorate his condition as to ensure him many years of well-earned rest. Unfortunately for the Hospital, it loses, also owing to ill-health, the valuable services of Mr. Fitch, the very able and energetic Clerk to the Committee, whose work is known to us in other directions.

The City is blessed with powers, not given to, or at least not exerted by, most, of carrying through an Act (City of London, Various Powers Act, 1924) which overrides certain provisions of the Lunacy Act (1890, *et seq.*) giving them power, such as was contained in the ill-fated Miscellaneous Bill, to receive voluntary boarders and to use the title "mental hospital" for all purposes. However right this may be—and it is right—it is certainly contrary to the principles of modern legislation that any local Act should alter fundamentally an existing general Act except and unless the local conditions differ from those generally in being.

During Dr. Steen's absence, and pending the new appointment, Dr. Norman Navarra has ably carried on, as deputy Medical Superintendent, and from his report it is seen that there are at present in the hospital a total of 348 private patients (a proportion of 3 to 2 as compared with rate-paid), also one gentleman and two lady boarders; five voluntary boarders have been admitted since the passing of the Act in July, one of whom recovered completely after a few weeks' residence.

No tabulated statistics occur in this report, but it is to be noticed that no cases of general paralysis, in the initial stage, were admitted during the year, so that further treatment by malaria was necessarily suspended, and cases of dementia præcox failed to give any promising results.

A considerable amount of structural alteration, improvement and addition has been carried out during the year, and a contract has been accepted for still further work providing for extended accommodation, operating theatre, dental room and laboratory.

The hospital has accepted *in toto* the model dietary as suggested in the Report of the Departmental Committee, which is giving

general satisfaction. The recovery-rate was 52 *per cent.* and the death-rate 5.5 *per cent.* The weekly sum charged for maintenance is 21s., as in the previous year.

Bucks County.—This report is much curtailed, and consists of only 15 pages. The greater part is occupied by the report of the Visiting Committee (containing an excellent illustration of a distribution switchboard), the balance being taken up by the report of the Board of Control.

From the former it is gathered that the number of patients in the hospital was 670 in 1924 as against 674 in 1923, of whom 63 were private and 29 service and ex-service patients. The reception contract with London County Council having expired, on the transfer of these patients to the new hospital at West Park, Epsom, a considerable number of vacancies on the male side were created.

The suggestions for improved dietary, recommended by the Departmental Committee, have been adopted in this institution, and in order to meet these requirements considerable alterations and improvements have been made, chiefly by the installation of an electrical cooking and baking equipment of sufficient capacity to cover the requirements for many years to come at the present rate of population increase.

Full use is made here of the county organization for agriculture, by making a considerable number of variety trials in connection with potatoes, mangels and wheat, and the Committee give very valuable and interesting figures showing the density of crop from different varieties, under different conditions, and methods of manuring, with the object of establishing the seed and manure most suitable for the land at the hospital farm. Poultry and fruit culture are similarly under the supervision of specialists in these departments, apparently with considerable advantage to the supplies to the institution.

The recovery-rate is not shown, but the death-rate for the year was 11.1 *per cent.* of the average number resident; nine deaths were due to tuberculosis. It is unfortunate that there are no statistical tables nor Medical Superintendent's report, and therefore we are deprived of much information on medical matters which could not fail to be interesting and valuable.

The maintenance-rate for the year was 17s. 6d. per week.

This hospital is fortunate in having a Chairman of great and long experience, who takes a keen personal interest in its welfare, and, in addition, expresses his well-known sympathy with the patients by acts of whole-hearted generosity.

City of Birmingham.—This report comprises (1) the report of the City Mental Hospital at Winson Green with its branches at Stechford Hall and Glenthorne, and (2) the report of Rubery Hill and Hollymoor Mental Hospital.

(1) *Winson Green Mental Hospital.*—There were remaining in the hospital on December 31, 1924, 734 patients—that is, 10 in excess of the normal accommodation provided—and of these 55 were service or ex-service and 31 private patients. Direct admissions were 182

for the year (males 72, females 110), and of the ætiological factors as far as could be ascertained, Dr. Roscrow gives the first place to heredity and mental stress (42·8 and 22·5 *per cent.* respectively), while alcoholism comes next with 17·5 *per cent.* Of the forms of mental disease 31·3 *per cent.* were diagnosed as confusional insanity, of which a large proportion made satisfactory recovery, and over 5 *per cent.* were cases of general paralysis.

The recovery-rate was 45 *per cent.* (males 36·1, females 50·9) and Dr. Roscrow adds :

" Nearly all these patients were allowed leave of absence on trial before being discharged. They were visited in their homes by the After-Care Visitor, and given financial assistance when it was considered necessary."

This is a method of dealing with discharges with which we shall all no doubt agree, and it is satisfactory both to the patients and the institution ; the weak point of discharge under sec. 79 is the clause prohibiting financial assistance from county or union funds. Recovery is recorded of dementia præcox in 7·3 *per cent.* and delusional insanity in 6·1 *per cent.* of the cases.

The death-rate for the year is noteworthy as the lowest death-rate since the year 1861, namely 8·3 *per cent.* General paralysis was the cause of death in 14·5 *per cent.* of the cases and senile decay in 19·3 *per cent.* ; death from tubercular disease of the lungs occurred in only 3 cases.

During the year 6 male patients received malaria treatment for general paralysis, but " although a certain amount of benefit, both physical and mental, ensued, no recoveries from the disease have so far resulted."

It is satisfactory to note that since 1891, 195 nurses have obtained the Nursing Certificate of the Association, and at the present time 47 *per cent.* of the staff hold it.

(2) *Rubery Hill and Hollymoor Hospital.*—The total number in the hospital at the end of the year was 1,442, the authorized accommodation being 1,421, and in addition to this there belonged to the area 240 other patients boarded out at Barnsley Hall and Powick, those formerly at Bicton (Shrewsbury) having been brought back. This figure of boarded-out patients is the lowest since 1912.

The direct admissions for the year were 296, of whom 242 were first-attack cases, and in the age-period curve of the direct admissions there were two chief peaks, one between the ages 25–34 and the other at 45–54.

Of the duration of the attack prior to admission Dr. Graves wisely says :

" One-third of the total had been recognized as showing mental symptoms for over three months before steps were taken to secure treatment. This duration is regrettable, but is explicable. The natural reluctance on the part of relatives to realize the condition, and decide to accept hospital treatment—which reluctance is met with in other branches of medical practice—and the legal necessities of certification which require that the symptoms should be well-developed before action can be taken, these conditions militate against successful treatment."

Of the types of insanity admitted, the largest group is that of confusional insanity (41) with simple melancholia closely following

(40); general paralysis and primary dementia contributed 27 and 24 cases respectively.

The recovery-rate for the year was 48.6, but no table is given showing the form of mental disease of those discharged under this heading.

The practice at this institution as to discharge of patients sent on trial is to accept the certificate of a general practitioner that "the patient has no further need of mental hospital treatment," and this is supported by information supplied by the Visitor.

The death-rate for the year was 6.78, 11 deaths being due to some form of tuberculosis, 15 were due to general paralysis, and Dr. Graves also records one death from rupture of the heart in the case of a man aged 63.

Dr. Graves is fortunate in having attached to his hospital a complete staff of specialists, which makes possible a thorough investigation into the physical condition of all admissions; in addition, the excellent laboratory under Sir Frederick Mott and Dr. Pickworth gives further aid in clinical work. From the experience thus gained Dr. Graves is satisfied that foci of septic infection are to be found "in the bodies of patients on admission, and removal of these foci is associated with an amelioration of the mental condition. In some cases improvement ensues much earlier than in others, and, broadly speaking, depends on the nature, duration and extent of the process of anti-intoxication, and the development of degenerative changes associated therewith."

No record of the result of the treatment of general paralysis by the induction of malaria is shown.

Of the nursing staff 29 male and 32 female nurses hold the Nursing Certificate of the Association, and the two chief female nurses are also on the Register of General Nurses.

The hospital is recognized by the University of London for the purpose of its special degree in mental diseases.

In this report Dr. Graves adopts the method of introducing his statistical tables into the body of the report, which obviously may have some advantages.

Morningside Royal.—Prof. G. M. Robertson's report is, as usual, both interesting and instructive, and it is perhaps difficult to do it justice in an abstract; it will no doubt be read *in extenso* by all who have the well-being of mental patients at heart.

In the two departments of the hospital (Craig House and West House) there were at the end of the year 829 patients under treatment, and 212 had been admitted during the year. Of these admissions, alcoholic excess was alleged as an exciting cause in 7 cases, but the number on more careful analysis was reduced to 5. The actual figures are not available, as no statistical tables are published with the report, but Prof. Robertson states that the recovery-rate for the year was below the average, and the death-rate the lowest in the history of the institution. There was only one death due to phthisis pulmonalis, and one due to pellagra.

The extension of the valuable services rendered by Morningside

to the community, by means of the establishment of four fully-equipped nursing homes, apart from the original building, in the suburbs of Edinburgh is described, and Prof. Robertson appears to approve of the treatment of early cases in these nursing homes by the general practitioner, which may, of course, be sound and true in a city like Edinburgh, but we are inclined to the view that all the evidence at present in our hands would not lead us to believe that the ordinary English general practitioner is, as a rule, sufficiently well equipped with special knowledge to give the best treatment to a mental case.

Prof. Robertson strikes a fundamental note of great importance when he challenges the necessity for judicial orders at all in the admission of patients to mental hospitals, and gives, in our opinion, sound arguments against them :

"There is an obvious conclusion to be drawn from these simple statements of fact regarding voluntary admissions. The public, when they have actually to face the alternatives, do not think that certification and judicial orders are either desirable or necessary for the protection of the persons or property of one-half of the private patients who need treatment in mental hospitals. It must be noted, too, that these come from the best educated classes in the country, and from those who receive the most reliable legal and medical advice. Further, the whole question of the necessity of judicial orders is opened up, for if the patients who are placed in mental hospitals under the authority of a medical certificate of emergency be added to those entering voluntarily, it is found in the case of the Royal Hospital at Morningside that 95 *per cent.* of the patients are admitted without a judicial order. In the emergency cases a judicial order is obtained within three days, but they are actually admitted without one, and that is the critical step, not the detention afterwards. The General Board of Control already has the power to grant sanctions for placing insane patients in private houses without any order from a magistrate or judge, and, if so, why not in mental hospitals, where they are better protected in every way? The abolition of judicial orders is not, therefore, so revolutionary a step as it seems, and many years ago such orders were not considered to be necessary for the protection of the patient by the General Board of Lunacy. No harm seems to have resulted from the absence of an order in the cases mentioned."

This is a view that many of us have held, but it is extremely doubtful whether the public in England are sufficiently enlightened on the subject of mental disease and its treatment to accept such a, to them, drastic step. The law that has to filter through the mind of the ordinary man in the market-place has, as Prof. Robertson remarks, frequently impeded medical treatment, and he quite justly refers to this law as a "bed of Procrustes for modern ideals"; it is to be hoped that we may not wait in vain to find a modern Theseus to slay our Polypemon.

Reference is made to malarial treatment of general paralysis and to psychic treatment, and an illustration given of the comparatively recent treatment of mental patients in Palestine by branding them with a cross at the back of the scalp to exorcise the devils, as described by Dr. Watson Smith, who is doing such splendid pioneer work as Medical Director of the Syrian International Mental Hospital at Asfuriyeh.

The whole report is full of interest and enthusiasm well directed.

Glasgow Royal.—There were 516 patients resident at Gartnavel at the end of the year—an excess of 12 as compared with the previous

year—and 118 patients had been admitted, of whom 112 were private and 6 service cases. The preponderating type of mental disease among the admissions was manic-depressive insanity (20), primary dementia of all kinds (19) and involutional melancholia (11 cases). Two cases of encephalitis lethargica were admitted, and in 5 cases alcohol and drugs were the main ætiological factors.

The recovery-rate for the year was 34 *per cent.* and the death-rate 5.5 *per cent.*

It is with considerable satisfaction that Dr. Henderson reports that approximately half the total admission-rate were voluntary patients, which, as he says, "is a satisfactory condition of affairs, because it must mean that gradually the laity are beginning to have more confidence in hospitals of this type."

Referring to psychiatry as a public health question, Dr. Henderson says :

"It must be remembered, however, that the institutional treatment of mental cases is by no means the largest or most important part. It is wrong to suppose that mental illness is something which must necessarily be controlled by means of irksome and cumbersome legal formulæ, but it is important to bear in mind that the care and treatment of the mentally ill is a purely medical and highly technical question. I admit that there must be, and should be, legal safeguards, not only for the patient, but also for the doctor, and that is the reason why I believe that, irrespective of future legislation, mental hospitals will never be able to be done without. I believe, however, that this problem of the care of the mentally ill should be viewed largely as a public health question, which can only be satisfactorily met by co-operation between the medical profession and the public. I have constantly referred to this matter before, but it cannot be over-emphasized or over-stated. Typhus fever, tuberculosis and other physical conditions have only been coped with by instituting campaigns directed towards educating the people in regard to the causes of these diseases, and in regard to matters of personal hygiene. The problem of the mental health of the community is a bigger and more difficult topic, but it must be dealt with in the same way. In tuberculosis and in physical illness generally the result must largely depend on how early the case is put under treatment. The same thing holds true of mental illness. Our statistics show us that as many as 44 of our cases out of a total of 118 admissions had shown mental symptoms for over one year before they were brought to the hospital. This, of course, means that the great majority of these patients are so disorganized in mind and body that they are unable to react to the treatment which is best for them, and are often so ill that they are unable to appreciate the suggestions and the advice given to them. If it is important for patients who are physically ill to be treated early, it is particularly important for patients who are nervously and mentally ill, because as the duration of the illness goes on these patients tend gradually and insiduously to get into habits of life which are difficult to eradicate. In order to effect this, it is essential for every enlightened member of the medical profession and of the community to familiarize himself with the work which is actually being done in mental hospitals, and to banish utterly from his mind the idea that it is a disgrace to the patient and to his family to be treated in one. The popular idea is that a patient will be made worse rather than better when associated with other patients who are mentally ill, whereas the opposite is usually the case. Furthermore, it should be understood that in mental hospitals an attempt is made to subdivide the patients as completely as possible, and to arrange the wards so as to have an admission unit, a hospital unit, a unit for convalescent patients, and a unit for patients who are disturbed, or who need very special observation. In a hospital so arranged it is possible for practically every type of mentally ill patient to receive the care and treatment which is necessary without having their feelings too greatly shocked. I would, therefore, again emphasize the fact that treatment in every sense of the word is carried out, that mental hospitals are not merely hospitals in name, but that they are hospitals in fact; they are not custodial institutions of a prison-like

nature, but they are institutions where curative and remedial work is carried out, often under the most adverse circumstances."

The Out-Patient Psychiatric Clinic held each week at the Western Infirmary is well attended, and Dr. Henderson has the voluntary help of a trained social service worker whom he finds to be of invaluable assistance, and illustrates, by cases, what can be done in this direction.

The appointment of an occupational teacher in the person of a lady graduate of Cambridge University appears to have been a great success, and Dr. Henderson expresses the belief that this department has assisted the recovery and made life in an institution more pleasant for the irrecoverable. Miss Robertson's report on her management of the Occupational Department is interesting reading and indicative of an enthusiastic worker.

Dr. Henderson has the assistance of three assistant physicians, three clinical clerks and specialists in all departments of medicine and surgery, while the pathological work of the institution has been carried out at the Western Asylums' laboratory under the direction of Dr. Whitelaw.

Glengall Hospital (Ayr).—The patients resident at the end of the year numbered 601, a residual increase of 20. There were 142 (males 74, females 68) cases admitted during the year, and by comparing the figures of past years Dr. McRae arrives at the conclusion that "certified insanity shows no increase in the county of Ayr."

Dr. McRae regrets, as we all do, the tendency to send criminals to ordinary mental hospitals, as it interferes with "the hard-won amenities of the unfortunate victim of mental disease in our mental hospitals provided by local authorities"; and referring to the admission of voluntary boarders, he points out the difficulties under which the District Asylums labour:

"Although the Royal mental hospitals continue to increase their number of voluntary patients, no uniform practice has yet been devised to permit of the admission to the District mental hospitals of similarly uncertified patients chargeable to the rates. Except that the ultimate decision to receive the patient as a voluntary one rests with the medical superintendent, it is only the financial aspect that effectively bars the way to extending the benefit of treatment without certification to rate-aided cases. This is the forfeiture of half the Government grant of something like 2s. 3d. weekly given to the parish in the case of certified patients—a sacrifice that might reasonably be made by those parishes that already only pay half the cost of the patient's maintenance, and none of the cost of providing and upkeep of the hospital. Were the parish agreeable to forego this small sum, it should be possible to arrange that anyone who desired to be admitted as a voluntary patient should come to the hospital provided with a letter from the Inspector of Poor of the district in which the applicant customarily resides, giving his consent to admission for treatment without certification, after examination by the medical superintendent. I am aware that many technical difficulties will arise, but they will gradually diminish in the light of experience. The system of voluntary admissions to mental hospitals should receive every encouragement, as there is reason to fear that the "borderline" supposedly dividing incipient from established cases of mental disease has now become a wide region or "borderland," which is surely degenerating into a "raiderland" for exploitation by the unskilled and unqualified. More than ever before many valuable lives are lost yearly in cases of curable mental disease from failure of the relatives to take proper steps to prevent such tragedies and secure restoration to perfect health and usefulness."

Thirty-eight cases were discharged recovered during the year, giving a total recovery-rate of 28 *per cent.*, and 90 *per cent.* of the recoveries took place within two years from the date of admission. Heredity was ascertained in 50 cases, and "grave bodily disease" was the chief ætiological factor (predisposing or exciting) in 43 cases; alcohol was the ascribed cause in 18 cases and vagrancy in 2 men.

As to the types of insanity on admission, delusional melancholia takes the first place with 19 cases, followed by organic dementia (15 cases) and acute mania (12).

The death-rate was 12 *per cent.*, and only 3 patients (4 *per cent.*) died of tuberculosis, in all of whom the disease was in an advanced stage on admission; that this is a cause for congratulation is evidenced by the fact that in 1908 37 *per cent.* of the deaths were due to tubercular disease in some form.

Inverness District.—Dr. Mackenzie admitted 159 (males 88, females 71) patients during the year, and ended the year (May 15) with an excess of eight over the previous figure. Of these admissions only 108 were first admissions, and the preponderating type of mental disease was melancholia, of which there were 81 cases; the next largest groups were dementia (40 cases) and mania 29 cases. It is interesting to observe the differing balance of the various types of mental disease in different institutions, and it is not at all clear in some cases as to how much nomenclature, how much geographical distribution, and how much personal equation is responsible for it. The areas from which the supply of cases is received show a fairly constant figure for some years back, and from a table given it is clear that during the last ten years admissions have tended rather to fall in number.

As regards ætiology, heredity was ascertained in 55 of the cases, and in addition to the 51 admissions that had been previously in an institution, there were another 15 who had undoubtedly had previous attacks, and in 23 of the total cases hereditary predisposition and previous attack were combined factors. Alcohol is given as the cause in 10 cases, all males.

Of the year's admissions 27 patients were discharged recovered during the same year, and 100 remained on the register at the end of the year. The recovery-rate was 32 *per cent.*

The death-rate for the year was 11 *per cent.*, and the majority of the deaths were due to senile decay (24 cases) and pulmonary tuberculosis (21 cases); there was also one case due to tubercular meningitis.

A considerable amount of work in the way of repair, extension and addition was carried out during the year, and it is interesting to note that Dr. Mackenzie makes special mention of the valuable work of one patient (in connection with clearing the catchment area of the asylum water supply), so continuously, persistently and well done as to relieve all anxiety of previous years as to scarcity of water. How well we all know this splendid type of man, so valuable, so full of character, and how rare he seems to be getting in most institutions.

Dr. Mackenzie draws special attention to the great need of early treatment in all mental cases, and quoting from the experience of a somewhat similar type of county, namely Dorset, and an extract from the *Journal of Mental Science*, urges and outlines a scheme of establishing a clinic in connection with the Northern Infirmary in Inverness.

During the year no less than 40 nurses and 17 attendants have been attending courses of instruction for the Association Certificate, and it is shown in a table that since 1896 145 male and female nurses have obtained the Association's Certificate after training at this institution, and of this number 127, mostly female nurses, have left the service.

Metropolitan Asylums Board.—The annual report of the Board is a bulky volume dealing with all the manifold duties for which it is responsible, and amongst these the Mental Section (which can be obtained separately). The classes of persons for whom the Board are responsible are: (1) Harmless Poor-law imbeciles, capable or incapable of improvement (children or adults); (2) feeble-minded Poor-law children; (3) sane epileptics; (4) suitable cases transferred from London County Mental Hospitals; (5) cases certified under the Mental Deficiency Act, 1913 (sec. 37), except those found guilty of any crimes of violence, or moral imbeciles within the legal definition. These cases are distributed as follows:

Fountain Mental Hospital: All children under *æt.* 7, unimprovable boys up to 9, and girls up to 16.

Tooting Bec: All adult Lunacy Act cases—no mental defectives.

Caterham: Healthy not-improvable adults of both sexes, and a certain number of low-grade trainable cases, not up to the Darenth standard.

Darenth: Practically all high-grade cases capable of a good deal of training.

Edmonton: Sane epileptics.

Leavesden: An infirmary.

Fountain, Caterham, Darenth and Leavesden together constitute the Metropolitan Asylums Board Certified Institution under the Mental Deficiency Act. The Board has a total accommodation for 9,077 cases.

Recent development in methods of training is described in various of the institutions, and the quality and output of the work appears to be highly creditable, representing as it does an enormous amount of patient and earnest work on the part of the instructors and others responsible, and it will no doubt be a surprise to many to hear that Leavesden has as many as 200 male patients on parole, which indicates a very thorough and detailed knowledge of individual tendencies.

As regards bodily health, tuberculosis seems to have declined considerably as a result of improved segregation methods, and at Caterham buildings have been specially set aside for this purpose, and also for dealing with ophthalmia.

Darenth was unfortunate enough to become infected with diphtheria,

which gave a great deal of anxiety and trouble, the work involved becoming so great as to necessitate the delegation of a special medical officer from the fever hospitals to cope with it. The very widespread dissemination of the germ was marked, and the isolation of the carriers discovered became difficult on account of want of accommodation, and an enormous amount of detailed work was necessary before the disease was eliminated.

The main body of the report is occupied by some extremely interesting and valuable papers, which are scarcely adapted for abstraction; the work, however, is extremely good and creditable to the Medical Officers of the Board, and should be available to a larger body of readers by publication in a medical journal.

The Royal Eastern Counties Institution for the Mental Defective.—

This Institution, dealing with the mental defectives of Norfolk, Suffolk, Essex and Cambridge, has a central main building at Colchester (including the Peckover Schools and Workshops), with subsidiary homes and schools at Halstead, Colchester, Lexden, Witham and Clacton, and in all has accommodation for 1,070 patients. With this large area to supervise, it is small wonder that the Board of Control suggested and the Board of Directors acceded to the appointment of a second assistant medical officer to relieve Dr. Turner of some of his responsible and widespread duties. It is impossible to read this report without admiration for the devotion of its officers and staff, and some amazement at the ready and good financial response, even in these difficult times, from the constituent areas from which the institution receives, and it is a satisfaction to find that, with all its difficulties and expenses, the financial position is quite sound. The work of the Ladies' Association in collecting money reads as one continuous record of successful work.

Dr. Turner's report is full of interesting matter, and is particularly noteworthy as resonating an enthusiastic and truly human tone which is no doubt the keynote of the outstanding success of the institution, and the high ideals of duty to their patients shown by the officers and staff.

Referring to the relation of the mental defective to the outside world Dr. Turner says :

"In thinking of the defective in an institution we should clear our minds of a good deal of cant and false sentiment. E. R. Johnstone, the Director of one of the best institutions in the world, the Vineland Training School, at New Jersey, puts it very plainly when he says, 'Let us not waste any maudlin sympathy on the subnormal girl or boy who spends his life in a good institution. It is a paradise compared to life in the slums and brothels, in the broken-down borders of a village or in a field of labour, that takes the last ounce of unfeigned strength to keep body and soul together.' This is perfectly true, and at the present time even more true of the defective in England than in America. The parents who want their boy or girl out do them a disservice that is difficult to estimate by their frequently unsettling letters and remarks. Inside, they have care, good food, an easy occupation without overwork or driving, plenty of recreation, no worry about to-morrow's dinner, no worry because of real wrong-doing, and above all the feeling of equality, the feeling that they are as capable or even a little more capable than their neighbour, a soul-satisfying feeling. Outside, apart from the possibility of prison, or refuge, or of brothel, there is the constant feeling of inferiority, the

knowledge that they will be the first to lose their job if employment gets slack, the poor type of work they can do. One of the greatest regulators of human conduct is the influence and opinion of the herd on the individual member of it, the effect of community or social influence. It is also one of the chief causes of happiness or unhappiness. We ought to ask ourselves how we should act and feel, if all our lives we had always had impressed on us, by every circumstance of our daily life, our uselessness and inferiority to our neighbours. That is the position of the defective outside, often, even in the best of homes. In the institution he is as good as the next man. The institution is, for the very great majority of its inmates, a very happy place. It gives them care suited to their needs, and employment regulated to their ability."

Dr. Turner's outline of the correct line of development of the institution in relation to the community in general is clear and absolutely sound.

The maintenance rate for the year was 19s. 8½d., which, of course, includes building and repairs.

COLONIAL, ETC., MENTAL HOSPITALS.

The Federated Malay States Central.—The hospital is situated at Tanjong Rambutan, in the state of Perak, near to the considerable town of Ipoh on the main railway line running north and south; its contact, therefore, with the constituent States by rail is fairly good, but inasmuch as the roadways in the area are unmetalled, locomotion in the neighbourhood of the hospital in the heavy rain season is, at times, extremely difficult.

The report is the thirteenth, and is for the year 1923. The total number in the hospital on December 31, 1922, was 1,050 (males 838, females 212). There were admitted during the year 601 patients from all sources; a large number of these are to be counted as transfers, but the admissions from the Federated Malay States alone were 358 men and 111 women—a total of 469—and this is stated to be the smallest since 1920. The common form of mental disease on admission appears to have been recent melancholia, closely followed by recent mania, confusional insanity and primary dementia. General paralysis accounted for 22 admissions. As regards discharges Dr. Samuels says:

"I still persisted in discharging patients 'improved' who would have been classed as 'recoveries' had I kept them a few weeks longer; but I believe it pays, as one feels that friends and relatives are beginning to see that this is primarily a hospital, and that our object is to cure and discharge our patients as soon as possible, and not merely shut them up and keep them out of harm's way."

As to ætiology, malaria, intestinal parasites, syphilis and alcohol are chiefly mentioned, the latter appearing as a primary cause in 42 cases. Having in view the attitude of the League of Nations and of those who advocate "American principles," it is interesting to read Dr. Samuels's experience of opium and alcohol, namely, that the ætiological figures indicate a very definite increase in the number of Chinese taking alcohol to excess, apparently as a direct sequence of the suppressive limitation of the supply of opium; this is a tendency which Dr. Samuels views with alarm, and in his opinion, and we would say in the opinion of all those who view life with a wider philosophy, rather than the narrow Puritanic outlook,

entirely a step in the wrong direction ; and this view is in harmony with the experience of many familiar with the Eastern races, who maintain that the majority differ from the Western communities, in that they can use, without abusing, stimulants like opium, but fall to pieces under the influence of the less familiar alcohol.

Under the heading "Heredity" Dr. Samuels says :

"Heredity appears eleven times, but I am confident that it was really responsible for a considerably greater number, especially in cases of primary dementia. The people are not yet educated sufficiently far enough in their views of mental disease to willingly acknowledge 'heredity' as a cause."

The explanation of the occurrence of mental disease in a family by the sin from without to conceal the sin from within is familiar to us even in *soi-disant* highly educated communities.

Dr. Samuels deplors the handicap under which he is placed by the continual change of staff of all kinds, medical officers being difficult to obtain and still more difficult to retain, consequently the medical and scientific work does not come up to the standard which is desirable, and in addition it is for this reason that no candidates were able to be trained for the Nursing Certificate of the Association.

The whole report is full of interest, but a rather pathetic expression of difficulties and disappointments, which fortunately Dr. Samuels is able to meet with a fine optimism, realizing with Smollett that "few live exempt from disappointment who run ambition's course."

Abbasiya and Khanka (Egypt).—The "lunacy department" of Egypt owes an immeasurable debt to Dr. Warnock for his many years of entirely praiseworthy work in its service—a department whose origin was entirely due to his energy and enthusiasm under difficult conditions. He has been succeeded by Dr. Dudgeon, from Khanka, who has been in the service since 1902, as Director of the Lunacy Division, and Director of Abbasiya Asylum, while Dr. Miller has been appointed Director and Dr. Selim Guirgis Sub-Director of Khanka.

Both of these institutions appear to be suffering from a high degree of over-crowding, and it is suggested by Dr. Dudgeon that any further accommodation should provide for the entire elimination of criminals from general wards by the erection of a Criminal Asylum for at least 500.

"The existing practice of keeping women, criminals and paying patients all in the same asylum is undoubtedly wrong, and a criminal asylum should be provided for at least 500 males—a number which is constantly increasing in spite of often discharging those who would be much better under care."

Abbasiya is an example of the frequent and alluring error, always deplored, made by public bodies, of taking over an existing building and converting it into a mental hospital.

"The total amount expended on the structure of Abbasiya Asylum now amounts to LE 181,799, while LE 236,155 have been expended on Khanka Asylum. Abbasiya was originally an old palace, and converted into an asylum ; Khanka was specially built as an asylum."

The normal accommodation at Abbasiya is 1,434 beds (males 701, females 733), the number of patients actually in residence being 1,530. There were admitted during the year (ending March 31, 1924) 571 cases, of whom 195 were paying patients, classified first, second and third class according to the amount they pay, which varies from P.T. 10 *per diem* to P.T. 40 *per diem*.

The recovery-rate was approximately 16 *per cent.* and the death-rate 6 *per cent.*

A large amount of laboratory work was done during the year in connection with blood and cerebro-spinal fluid examination and also in examination for bilharzia, under which heading 1,525 patients and 379 staff were examined, of whom 128 of the former and 24 of the latter showed live ova.

The normal accommodation at Khanka is for 640, while the number of patients actually in residence was 1,010, representing overcrowding to the extent of over 50 *per cent.*

Owing to the surplus water from the Gabal el Asfar sewage farm (some two miles distant) being allowed to flow on to the neighbouring desert land (Dr. Miller thinks), a great increase of mosquitoes occurred in the autumn of the year, which later led to a serious epidemic of malaria in the district, including the mental hospital.

The recovery-rate was approximately 18 *per cent.* and the death-rate 12 *per cent.*

During the year 1,550 patients and 255 staff were examined for bilharzia, and of the former as many as 1,156 and the latter 166 were found to be positive.

Pellagra showed a fall in numbers as compared with former years, and Dr. Miller points out the great difficulty in the diagnosis of these cases.

Dr. Miller is to be congratulated in that he is able to record a higher standard in the nursing staff, and to be sympathized with in his laments as to the insufficient water supply, which it is to be hoped will shortly be remedied.

New South Wales.—These are ten in number, of which two (Newcastle and Rabbit Island) are entirely devoted to mental defectives, and one, at Parramatta, to criminals. Besides these there are three licensed houses, and some patients also coming within the jurisdiction of the Inspector-General are maintained, for convenience, in this wide-flung area, in the hospital for mental diseases at Parkside, Adelaide, by an arrangement with the Government of South Australia.

The total number of patients actually resident in hospitals on June 30, 1924, was 7,596 as against 7,466 on the corresponding date in 1923, representing an increase of 130, which is a little under the average increase for the past 20 years.

The number of admissions to the hospitals during the year was 1,396, natives of New South Wales forming (roughly) 57 *per cent.*, while the balance is made up by other Australian States (12), England (18), Ireland (5), Scotland (3) and other countries (4 *per cent.*).

Dr. Sinclair shows the amount of "occurring insanity" in a table which demonstrates that whereas the proportion to population in 1904 was 1 in 1,432, in 1914 it was 1 in 1,310, and in the year under review it was 1 in 1596.

The total recovery-rate from all the hospitals (excluding Newcastle and Rabbit Island) for the year was 39.8, and the inclusive death-rate was 7.6 *per cent.*, 68 deaths being due to general paralysis of the insane and 41 to consumption.

As regards ætiology, intemperance was the assigned cause in 126 cases, venereal disease in 86 cases and old age in 153; heredity was only definitely ascertained in 132 cases.

The weekly cost of maintenance varied considerably in the different hospitals, from approximately 19s. 6d. at Stockton to approximately 35s. per head at Newcastle.

In addition to the institutions enumerated above, the State also has three reception houses at Darlinghurst, Newcastle and Kennore respectively, and during the year 1,659 patients were admitted to them, of whom 655 were discharged, and thus were saved the necessity of being certified and removed to a mental hospital.

"These institutions do valuable work, not only in the interests of the patients, but in the interests of the mental hospitals generally. Patients with slight mental disturbances of short duration are enabled to obtain suitable treatment in a reception house, and to avoid certification, while alcoholic cases are detained there, and prevented from proceeding to hospital. The latter are out of place in the wards of a hospital for treatment of cases of insanity, in which they invariably prove troublesome and difficult to manage."

An out-patient department has been, during the year, established at the Royal Prince Alfred Hospital, and a psychiatric clinic at Broughton Hall is in existence, both being under the medical supervision of the Professor of Psychiatry, and acting in a complementary manner to each other.

"Admission to Broughton Hall is entirely voluntary, and patients are not detained against their desire to leave. In all the mental hospitals there are patients under similar conditions. It is therefore obvious that there is a desire in the community for treatment in mental hospitals without certification, which should be met by regularizing the present procedure by amendment of the Lunacy Act."

No legislation in connection with mental deficiency, such as has been carried through in Great Britain, the United States, and indeed in some other Australian States, has been forthcoming in New South Wales, and for this Dr. Sinclair makes an eloquent appeal "in the interests of both the unfortunate mental defectives themselves and the integrity of the mental and physical standard of the race."

An amendment of the existing Lunacy Act (1898) dealing with incipient cases and voluntary patients in public hospitals, somewhat on the lines recommended by the Association, is urgently needed, and in fact has been drafted and re-drafted, but so far has not been presented to the Legislative Assembly.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE EIGHTY-FOURTH ANNUAL GENERAL MEETING of the Association was held on Tuesday, Wednesday, Thursday and Friday, July 7 to 10, 1925, at the University, Edmund Street, Birmingham, under the presidency, in the earlier proceedings, of M. J. NOLAN, L.R.C.P.&S.Irel., and, later, that of Sir FREDERICK W. MOTT, K.B.E., LL.D., M.D., F.R.S.

The Council and the various committees assembled on the previous day.

MORNING SESSION.—TUESDAY, JULY 7.

at The University, Edmund Street, Birmingham.

Dr. M. J. NOLAN, President, in the Chair.

MINUTES.

The minutes of the eighty-third annual meeting, held at Belfast, having appeared in the Journal were taken as read, and were confirmed and signed by the President.

ELECTION OF OFFICERS OF THE ASSOCIATION.

The PRESIDENT proposed that the officers of the Association for 1925-26 be:

President.—Sir Frederick W. Mott, K.B.E., LL.D., M.D., F.R.C.P., F.R.S.

Ex-President.—M. J. Nolan, L.R.C.P.&S.Irel., M.P.C.

Treasurer.—James Chambers, M.A., M.D.

Editors of Journal.—J. R. Lord, C.B.E., M.B., H. Devine, O.B.E., M.D., F.R.C.P., G. Douglas McRae, M.D., F.R.C.P.Edin.

General Secretary.—R. Worth, O.B.E., M.B.

Registrar.—Daniel F. Rambaut, M.A., M.D.

This was agreed to.

The President-Elect.

The PRESIDENT said that the Council had unanimously adopted for the position of President-Elect the name of Lt.-Colonel J. R. Lord, C.B.E., M.B., the senior Editor of the Journal. In so deciding the Council had in view the valuable services to the Association of Col. Lord, and his whole-hearted zeal in its interest. Moreover, apart from that, his fine record of public services in many scientific departments doubly qualifies him for the honour. He therefore put forward, as the unanimous voice of the Selection Committee, accepted unanimously by the Council, the name of Col. Lord, and asked the meeting to ratify the selection with equal cordiality and unanimity.

This was agreed to with acclamation.

He next proposed that the nominated members of Council be: Drs. Thomas Beaton, C. H. Bond, H. B. Leech, Hamilton C. Marr, J. N. G. Nolan and G. M. Robertson.

This was agreed to.

Election of Honorary Members.

On the proposition of the President the following gentlemen, whose names had been approved of by the Council, were elected Honorary Members:

The Right Honourable ARTHUR NEVILLE CHAMBERLAIN, M.P.

Sir DAVID DRUMMOND, C.B.E., M.A., D.C.L., M.D., J.P.

APPOINTMENT OF AUDITORS.

C. F. D. McDOWALL, M.D., and H. J. NORMAN, M.B., were appointed the Auditors for the current year.

APPOINTMENT OF COMMITTEES.

The following Committees were appointed: The Parliamentary Committee with the addition of Dr. T. C. Mackenzie, Dr. Donald Ross and Sir Robert Armstrong-Jones; the Education Committee with the addition of Dr. Donald Ross, Dr. O'Connor Donelan, Dr. S. J. Graham and Sir Robert Armstrong-Jones; the Library Committee; the Committee on Post-Graduate Teaching and Diploma in Psychological Medicine.

REPORT OF THE COUNCIL.

The Hon. GENERAL SECRETARY (Dr. R. WORTH) read this Report:

The number of members—Ordinary, Honorary and Corresponding—as shown in the list of names published in the *Journal of Mental Science* for January, 1925, was 739 as compared with 743 in January, 1924.

Number of new Members elected in 1924	.	.	.	.	.	37
Number of Members restored in 1924	.	.	.	.	.	0
Removed according to Bye-law 17	.	.	.	.	.	0
Number of Members resigned in 1924	.	.	.	.	.	5
Number of deaths in 1924	.	.	.	.	.	14

Members.	1915.	1916.	1917.	1918.	1919.	1920.	1921.	1922.	1923.	1924.
Ordinary . .	644	632	627	626	626	640	631	676	699	694
Honorary . .	34	32	33	32	26	24	25	27	30	29
Corresponding .	18	18	18	17	9	9	10	13	14	16
Total . .	696	682	678	675	661	673	666	716	743	739

Since the last Annual Meeting, Quarterly Meetings have been held in London in November and May. The February Meeting was held in Edinburgh. In connection with the Royal Commission appointed to inquire into the working of the Lunacy Acts and the provision of early treatment of mental disorders, Sir Frederick Mott, Drs. R. H. Cole, M. A. Collins, R. Worth, J. R. Lord and E. Goodall were nominated by the Association to give evidence on its behalf. This evidence, after being submitted to the Association, was given, and the Memorandum which was drawn up will appear in the July number of the *Journal of Mental Science*.

The post of Registrar, since November last, has been ably filled by Dr. D. F. Rambaut.

A sub-committee was appointed to act as an Advisory Committee to the General Nursing Council of England and Wales, in regard to the State examination of mental nurses. This Advisory Committee was asked to nominate examiners for the Final Examination for the General Nursing Council, and nominated the same examiners as were examining for the Association, but on an objection being raised by the General Nursing Council that an Irishman and Scotsman were elected to serve, they asked that three Englishmen should be appointed. This was accordingly done and accepted by the General Nursing Council, and in addition the Advisory Committee was asked to appoint 32 doctors and 32 nurses to assist in the practical part of the Final Examination.

The 48 Hours Bill was discussed at the November meeting, and a resolution was carried unanimously to the effect that the Association opposes the inclusion of mental nurses in such a Bill, as it was considered to be detrimental to the interests of the patients, and therefore to the ethics of the nursing profession.

Conferences have been held dealing with the amendments to the Asylums Officers' Superannuation Act; an amended Bill has been drafted, and arrangements are being made to introduce it into the House of Commons.

The matter of the Association being granted a Royal Charter was discussed at the Quarterly Meetings and a draft petition has now been printed.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION.—For the Year 1924.

REVENUE ACCOUNT—January 1st to December 31st, 1924.

1933. Dr.		Expenditure.		Cr.		
£	s. d.	£	s. d.	£	s. d.	
800	6 10	To Journal—Printing, Publishing, Engraving, Ad- vertising, and Postage	945	13 10	224	13 3
2243	5 2	Examinations, Association Prizes, and Clerical Assistance to Registrar	1143	18 4	270	0 0
207	2 9	Petty Disbursements, Stationery, Postages, etc.	24	2 8	160	2 0
207	5 3	Annual, General, and Divisional Meetings	243	14 1	284	13 4
110	4 0	Rent of Premises at 11, Chandos Street, care of Office	116	4 0	4	5 7
10	10 0	Audit and Clerical Assistance	10	10 0	33	18 11
213	11 0	Miscellaneous Account	34	19 4	33	18 11
2283	4 5	Balance	2519	2 3	458	5 8
			1864	3 11	2540	5 6
			£4383	6 2	1152	3 3
					7	19 6
					1444	4 0
					6	7 6
					£4383	6 2
					£4054	0 5

Income.		Gr.	
£	s. d.	£	s. d.
By Dividends—General
" Sale of Journal
" Handbook
" Statistical Forms, etc.
" Advertisements
" Fees, Certificates of Psychological Medicine
" " Certificates of Proficiency in Nursing
" Subscriptions
" Interest on Deposit

BALANCE-SHEET—31st December, 1924.

[illegible]

MAUDSLEY BEQUEST.

1924.	Dr.	Expenditure.	£	s.	d.	£	s.	d.	Income.	Cr.
	Jan. 10.	To Cash—Income Tax	23	15	0	...	...	...	Income Tax owing	113 10 4
	May 22.	" " Lecturer's Honorarium	52	10	0	...	...	...	...	23 15 0
	" 28.	" Expenses of Meeting...	5	2	0	...	...	...	...	52 16 4
	Dec. 31.	" Balance Income Tax owing	23	15	0	...	...	...	War Loan, 5 per cent.	52 16 4
	"	" Dividends	137	16	0	...	...	...	"	...
			161	11	0	...	...	...	...	...
			£242 18 0			...	...	...	...	£242 18 0

GASKELL FUND.

1924.	Dr.	Expenditure.	£	s.	d.	£	s.	d.	Income.	Cr.
	Jan. 10.	To Cash—Income Tax	...	...	...	...	...	...	Income Tax owing	187 18 2
	Nov. 20.	" Prize awarded	30	0	0	...	...	...	New Zealand, 3½ per cent.	4 3 0
	" 26.	" Examiners' Fees	4	4	0	...	...	...	New Zealand, 3½ per cent.	18 14 6
	Dec. 31.	" Balance Income Tax	...	...	...	...	...	...	New South Wales, 3 per cent.	3 18 6
	"	owing	4	3	0	...	...	...	War Loan, 5 per cent.	9 5 0
	"	Dividends	213	7	2	...	...	...	New Zealand, 3½ per cent.	18 14 6
			217	10	2	...	...	...	New South Wales, 3 per cent.	3 18 6
			£255 17 2			...	...	...	War Loan, 5 per cent.	9 5 0
			£255 17 2			...	...	...	...	£255 17 2

The sixth Maudsley Lecture—a scientific one—was delivered at the May meeting by Prof. J. Shaw Bolton, entitled "Mind and Brain."

The following papers were also read at the February Meeting: "The Boarding-Out System," by Dr. George Gibson; "Demonstration of the Psycho-Galvanic Reaction," by Dr. David Slight; "Results of Treatment of General Paralysis by Malaria," by Dr. Wm. McAlister.

A revision has been made of the list of institutions recognized for the training of mental nurses and those nursing mental defectives. It has been urged that the members of the Association should take more interest in the Mental After-Care Association, and it is hoped that they will take part in forming more centres.

New Regulations have been drawn up and published in regard to the Gaskell Prize.

R. WORTH, *Hon. General Secretary.*

He moved that it be adopted.

Dr. F. H. EDWARDS seconded.

The PRESIDENT said the prizes would be more fully advertised in the future than they had been in the past.

The Report was adopted.

REPORT OF THE TREASURER.

The GENERAL SECRETARY said he had heard from the Hon. Treasurer, Dr. J. Chambers, who had not yet completely recovered from his serious illness, but was progressing satisfactorily. He read the Financial Report:

I beg to submit the Revenue Account and Balance-Sheet of this Association for the past year, also a statement of the Income and Expenditure of the Gaskell Fund and the Maudsley Bequest.

There is a substantial credit balance in all these accounts. In the Gaskell Fund the credit balance is £213 7s. 2d., and I suggest that the Council should consider whether a portion of this amount should be invested.

During the year there was purchased for the Association £2,300 3½ per cent. Conversion Loan.

J. CHAMBERS, *Hon. Treasurer.*

He moved that it be adopted.

Dr. BEDFORD PIERCE said he wondered whether, having regard to the good financial position of the Association, it might be possible to do something towards helping research work.

The PRESIDENT thought that, in the absence of the Treasurer, it would be best not to discuss future finance as the position might be doubtful in the future, whatever might be their position at present.

Dr. F. H. EDWARDS suggested that, by the powers conferred by the Charter, it might be possible to endow research, therefore until the Charter question had been decided it did not seem wise to raise questions as to the disposal of the Associations' funds.

The PRESIDENT said there was a matter which might affect the Association later, namely, the possibility of the Association, in the immediate future, seeking new quarters. The expenses incidental to such an event could not be estimated at the moment. The Council had left the matter in the hands of the President and other officers to act as they might think necessary to secure more suitable accommodation for the Association.

Dr. M. A. COLLINS asked whether the Treasurer had mentioned the matter of investing some of the Gaskell Fund.

The PRESIDENT replied that the Treasurer suggested that a portion of the Gaskell Fund should be invested.

Dr. COLLINS asked whether this matter might be left in the Treasurer's hands to do what he might think best.

The PRESIDENT replied that it was so decided at the meeting of the Council.

The Report was agreed to.

REPORT OF THE EDITORS.

Lt.-Col. J. R. LORD submitted the Report of the Editors:

Owing to unforeseen circumstances the Report of the Editors for 1923 was not completed in time for its submission to the Annual General Meeting held on July 2, 1924, at Belfast. This Report, therefore, is in respect of 1923 and 1924.

The Journal has steadily increased in number of pages since 1922. The cost of production has likewise increased, but not disproportionately. The increase in the size of the Journal was thought justifiable having regard to the great fall in costs which occurred in 1922. The circulation of the Journal has also increased for some years past.

These facts are all shown in the following table :

	1920.	1921.	1922.	1923.	1924.
Circulation	3,600	3,759	3,800	4,000	4,100
Number of pages . . .	536	581	472	603	722
Cost of production per copy	—	5/4.8	3/8	4/3	4/10
Cost to Association „ .	—	3/9	2/3	3/1½	3/2

The economy of production is shown by the fact that an increase of 119 pages during 1924 over those for 1923 has only increased the cost per copy to the Association by $\frac{1}{4}$ d. The limited circulation of the Journal will not permit of a reduction in the price per copy, which remains at 7s. 6d.

Analysis of Cost of Journal 1923-24.

	1923.			1924.		
	£	s.	d.	£	s.	d.
Printing of text	505	14	0	572	4	4
Illustrations	70	3	6	17	8	0
Paper for text	54	16	0	65	3	0
Advertisements	14	10	10	16	7	0
Binding	47	10	0	58	16	3
	692 14 4			729 18 7		
Reprints	64	0	2	79	10	3
Wrappers	30	10	4	30	8	3
Despatch	36	5	7	38	9	11
	130 16 1			148 8 5		
Stationery	6	18	6	1	12	10
Postage	14	6	1	13	11	2
Index	7	7	0	10	10	0
	28 11 7			25 14 0		
Publishers' fees	41	12	6	40	0	0
	£893 14 6			£944 1 0		
Credit—						
Sale of Journal	247	10	0	270	0	0
Advertisements	19	13	5	23	18	1
	267 3 5			293 18 1		
Cost of Journal to Association	626	11	1	650	2	11
Cost of production of Journal per copy	4	3		4	10	
Cost to the Association of Journal per copy	3	1½		3	2	
Size of Journal in pages	603			722		

The matter has been raised as to whether it might be possible to assist authors in the publication of small works on psychiatric and psychological subjects by the publication of monographs in connection with the Journal. There are many difficulties, however, and the Association must be willing to make many changes in the constitution and nature of the Journal, and to undertake greater financial responsibilities. It would mean that original articles dealing with some subject comprehensively or a record of research work which now occupy many pages of the Journal would be issued separately as monographs and perhaps with ample illustrations and diagrams, which we cannot afford to produce under present conditions. The monographs would be sold at a fair price, and profits would be credited to the Journal in accordance with its financial responsibilities. The Journal would thereby be reduced in size and price, and would probably need to be issued monthly, and much more matter of a general character, news, etc., included to widen the circulation, which at present is almost limited to members of the Association, libraries, schools and local authorities. A paid part-time or whole-time assistant editor would be needed, who could, however, also be Librarian and be of some service to the Registrar and General Secretary.

The Editors are not at present prepared to make any recommendations in this matter, which would require consideration in all its aspects.

The Journal is still fortunate in being able to publish each year many original articles of great scientific value, and to maintain, and perhaps improve, its position in current medico-psychological literature.

The reviews and epitomes are something more than mere notices, abstracts or acknowledgments, the object being that they should contain criticism and information of real value.

Twenty-one books were reviewed during 1923 and thirty-four during 1924, and over 100 articles during 1923 and 70 during 1924 were epitomized. The Editors again thank all those who so willingly continue to give them such valuable assistance in the production of the Journal, and also Mr. Adlard, whose personal interest in the welfare of the Journal lightens the work of editorship considerably.

For the Editors, JOHN R. LORD.

He said, in submitting this Report and asking the meeting to adopt it, that although he did not for a moment believe the Association was losing prestige, or that it was declining in usefulness, what he did feel was that the Association must move with the times or such would be its fate; and he submitted that the index finger of the times was pointing very definitely to the need for the Association to extend its sphere of activities, especially in the direction of scientific psychiatry, in which the junior members of the specialty were showing the deepest interest. The Journal would, therefore, need to adjust itself accordingly. With the Journal in its present form there was arising great difficulty in meeting the requirements of members who wished to publish records of original work, many of them of great value. For instance, in the July number there would be published two such works, each of which in monograph form must be worth at least 5s. At present the incorporation of these meant either cutting them down and printing portions in small type or postponing shorter original articles, reviews and epitomes, etc. Furthermore, the question of illustration presented monetary difficulties, and he had to obtain assistance in these respects from several sources. He thought the time had come to appoint a committee to inquire into these matters and to see in what direction the Journal could be improved. With the exception of *Brain* there was not in England a journal which would publish such papers as he had alluded to—lengthy contributions entirely original, with masses of statistics, charts, etc. Other journals would have rejected them either because of their length, the diagrams, or the pages of references. He thought that sooner or later—and the sooner the better—the Association must make up its mind to meet these contingencies, and provide, through the medium of the Association, an outlet for the scientific and research work of the members of the Association. The short sketch given in the Report of the possible direction in which this might be effected was nothing more than a sketch; and when the matter came to be considered in all its bearings by a special committee a better scheme might be evolved.

He took the opportunity of saying how deeply he appreciated the honour which the Council had done him, and endorsed by that meeting, by nominating him as their President for 1926. It made him feel very old when Dr. Chambers intimated to him that the supreme Council of four—or ten, or some such body—which decided these matters, pointed out that he, the speaker, was one of the senior members of the Association, and must for a time take a position of greater responsibility. Members could rely that, in the future, as in the past, his energies would continue to be whole-heartedly devoted to the interests of the Association and to the progress of psychiatry in this country. (Applause).

He moved the adoption of the Report of the Editors.

Dr. C. C. EASTERBROOK said it gave him much pleasure to second the adoption. He suggested that the news part of the Journal might be issued as a separate bulletin as in the case of some other medical journals.

The PRESIDENT said that he had felt for many years that the *Journal of Mental Science* was capable of changes which would be of benefit all round. Many years ago he heard a member—who was an exceedingly clever man and had much scientific work to dispose of—say, when asked why he did not put his work into the *Journal of Mental Science*, that the Journal was too slow, and did not come out rapidly enough. And it had always occurred to the speaker that if the Journal could be produced more frequently, and, as had been suggested—not for the first

time—a bulletin with the reports of meetings issued separately, as in the case of the *British Medical Journal*, it would be more useful, because many items of news became absolutely out of date by the time the quarterly Journal reached the members and were therefore not included. He thought the suggestion of Col. Lord ought to be acted on to-day, and a Committee appointed to consider the publication of the Journal and any changes which might be thought desirable.

Another suggestion he had heard was that the time had arrived for altering the name of the Journal, to bring it more into line with the literature of the same class which was issued by other countries. One suggested title was "The British Journal of Psychiatry." This, however, was a matter for the Committee to suggest. However, the Secretary had just reminded him that the correct mode of procedure was to place the matter on the agenda for the next Council meeting, and that would be done.

The Report was agreed to.

REPORT OF THE AUDITORS.

Dr. COLIN McDOWALL submitted this Report, and moved that it be adopted:

We, the undersigned, having examined the Treasurer's books, and having duly compared and scrutinized receipts and vouchers, hereby certify that the Accounts and Balance-Sheet, as set forth, represent a true statement of the Medico-Psychological Association's finances for the year 1924.

COLIN McDOWALL } *Hon. Auditors.*
HUBERT F. NORMAN }

Dr. J. G. SOUTAR seconded, and it was agreed to.

REPORT OF THE EDUCATIONAL COMMITTEE.

Dr. A. W. DANIEL read this Report and proposed that it be adopted:

The Educational Committee beg to submit the following report for the year ending July 6th, 1925.

Four meetings have been held during the past twelve months.

The new regulations providing for the co-operation of examiners of the nursing profession came into force for the Final Examination held in May last. It was agreed that the nurse coadjutor at the *vivâ voce* examination shall be paid similar fees to those paid to the medical examiners.

The Gaskell Prize for 1924 was awarded to Dr. Mary Rushton Barkas. No award was made for the Prize Dissertation.

In 1924 there were three candidates for the Certificate in Psychological Medicine, and all three were successful.

In November, 1924, certain alterations in the Syllabus and Regulations governing the Gaskell Prize were approved by the Council, the most important alteration being that a thesis based on original research may be accepted by the examiners in place of either the written or the clinical examination or both.

The Special Sub-Committee appointed to deal with the revision of the "List of Recognized Institutions" presented their report at the November meeting of the Educational Committee; as a result of this Report, a Training Sub-Committee has been appointed to recommend additions to the "List of Recognized Institutions" and to subject it to an annual revision.

The number of candidates who presented themselves for the nursing examinations during the year were: Preliminary, 3,221; Final, 2,786. In the previous year: Preliminary, 3,471; Final, 2,641.

The Educational Committee received the first report of the Training Sub-Committee and approved it yesterday.

Owing to the increase of the Registrar's clerical work necessitated by the new Regulations, the Educational Committee recommend that the allowance to the Registrar in respect thereof should be increased to £100.

It has been arranged that the signatures to be attached to the Nursing Certificate should in future be those of the President, the Examining Superintendent and the Registrar.

J. KEAY, *Chairman.*
A. W. DANIEL, *Secretary.*

Lt.-Col. J. KEAY seconded.

A MEMBER asked what were the qualifications for a nursing coadjutor. Must she be a general trained nurse, or a mental trained nurse?

The PRESIDENT said that she need not be a general trained nurse.

Lt.-Col. LORD asked what was the attitude of the Association to registered nurses who had obtained admission to the Register, not by examination, but by the service qualification. Were such nurses exempted from the Association's Preliminary Examination?

Dr. DANIEL replied that there was nothing in the regulations about that.

Lt.-Col. LORD said there might be some such unqualified nurses registered as State general nurses who would want to be mentally qualified, and the Association must decide sooner or later as to the number of years of training they would need to have and as to how many examinations they would be required to pass. The question had arisen in one place he knew of, where a male nurse who had produced evidence to the General Nursing Council that he had had considerable general hospital experience and so had been put on the Register as a general male nurse. And that man wanted to know how many years' service he must have in a mental hospital before he could qualify for the Association's Final Examination, and also whether he would be exempted from the Preliminary Examination. Thus the Association ought to make up its mind as to what attitude it would take as regards training and examination of those State nurses who had been admitted to the Register, and who had qualified by experience, but not by examination.

Dr. DANIEL read the regulation: "Nurses who possess certificates of having trained for three years in a general hospital or Poor-Law infirmary approved by the Council shall be exempt from the Preliminary examination, etc."

Lt.-Col. LORD: It does not cover all the nurses qualified to be State nurses. Many on the Register have never been trained at all.

Dr. C. C. EASTERBROOK: They have to have a certificate.

Lt.-Col. LORD: There are general nurses on the State Register who have never passed an examination of any sort. If they come to us for mental training do they have to undergo three years' training and to pass both Preliminary and Final Examination? Shall we change our attitude in this matter or not?

Dr. G. DOUGLAS McRAE: I propose that it remains as it is. If the State has lowered the standard of its requirements, that is no reason why we should do so.

Dr. BEDFORD PIERCE said he thought the regulation met the situation which was under discussion. Because the State was obliged to recognize many of the existing nurses he did not see why this Association should alter its Regulations.

Lt.-Col. LORD said he mentioned the matter because he felt some applications from nurses qualified for registration as existing nurses would be made for this exemption, and perhaps applications from local authorities. Now that the Association had expressed its opinion that there should be no exemption in these cases, it would be a guidance to those officers who dealt with such applications.

A MEMBER asked whether it could be put into the Regulations so that it could be quoted.

The PRESIDENT said the regulations were quite clear on the point that the applicants for exemption from the preliminary course and examination must have certificates of three years' general hospital training.

Dr. EASTERBROOK said that anybody in the category Lt.-Col. Lord mentioned would have to be told they must produce the required certificate of general training.

Dr. DANIEL said it was suggested that there should be only one portal of entry, and that the State examination, but that view was not adopted by the Association.

Lt.-Col. LORD said the position was that the nurses who passed the State Preliminary Examination must proceed to pass the Association's Preliminary Examination before they could enter for the Final Examination for the Medico-Psychological Nursing Certificate.

Dr. EASTERBROOK thought that if any nurse had got the Final State Certificate he or she need only pass the Final Examination of the Association.

Lt.-Col. LORD said the nurse who possessed certificates of having trained for three years in a general hospital or Poor-Law infirmary approved of by the Council would be exempt from the Preliminary Examination, and would be eligible for the Final Examination after two years' training. If she had obtained admission to the State Register as the outcome of possessing a three years' training certificate, and having passed the State examination, it was not the State examination which exempted her from the Medico-Psychological Association's Certificate for the

Preliminary, but the fact that she had a three years' certificate from a general hospital. Being on the State Register was of no moment as far as the Association's examinations were concerned. If a nurse was to be exempted from the Association's Preliminary Examination she must have done three years' training in a general hospital or Poor-Law Infirmary, and have a certificate of training stating this. Whether she was on the State Register or not did not matter, and the sooner that fact was clear in people's minds the better.

Dr. D. ORR asked whether the Association had any declared policy on this subject, namely, as to the registration of nurses.

The PRESIDENT replied that at several Council meetings that matter was traversed thoroughly, and there was a definite policy, which was laid down in the Rules and Regulations for the Association's Training Certificate.

Dr. ORR said he would like to hear, from Dr. Daniel, what the policy was.

Dr. DANIEL replied that the policy of the Association was to continue its own examinations; that was re-affirmed on the previous day at the Council meeting. The State registration was not the Association's business, but the business of the State. The Association's policy was to encourage nurses to go in for the State examination, and a circular letter was being prepared on the subject.

Dr. ORR asked if that advice was not accepted what would happen to the nurses.

Dr. DANIEL said it was for the nurses themselves to settle.

Dr. ORR retorted that it was for the Association to settle.

Dr. DANIEL said the nurses would take the advice of their superintendents. The Association was advising superintendents that nurses should go in for the State examination.

Dr. ORR said there was much unrest, as the nurses were not assured that the State examinations would be accepted by the mental hospital authorities. He had appointed a head nurse who was already qualified as a general hospital nurse. She then took her certificate from this Association. Was not that the right policy?

Dr. DANIEL said that was no business of the Association.

Dr. ORR said that was the only means by which all this unrest could be settled.

Dr. SOUTAR said he did not see what Dr. Orr's policy was. He asked whether Dr. Orr wanted everybody to be in the position of the nurse he had mentioned: that a nurse should first hold a certificate in general nursing, and then take the certificate of the Association.

Dr. ORR said that the correct policy of the Association was that the mental hospitals should engage general hospital trained nurses, and tell them that in the event of their taking the Association's special certificate they would be promoted.

Lt.-Col. LORD said it was necessary to differentiate between the policy of the Association and the policy of the local authorities. What Dr. Orr had been mentioning were policies of the local authorities. The business of the Association was to train the nurses, and—if he could voice the Association's feeling in the matter—they meant to remain independent and to stick to their ideas as to training and examinations. The Association was adopting an attitude of benevolence and one of working in a collegueship with the one-portal system, by doing its best to induce nurses to qualify for the State Mental Register. If the Association had any policy at all as regards the one-portal system, that was a plain statement of it. It was for the local authorities to say whether they would appoint untrained nurses, or medico-psychological trained nurses, or general hospital nurses. Such matters were mixed up with questions of rank and pay, matters which local authorities would resent interference with. As an Association of psychiatrists their duty was to train mental nurses, and it was the duty of the local authorities to decide whether the Association's training was good enough. If it was not thought to be good enough, then that was the time to start looking into the Association's Nursing Regulations.

The PRESIDENT reminded the meeting that the discussion as to the actions of the local authorities was out of order, as that did not come into the Report.

The Report was agreed to.

REPORT OF THE PARLIAMENTARY COMMITTEE.

Dr. G. DOUGLAS McRAE read this Report and moved that it be adopted:

During the past year the Parliamentary Committee has met four times.

A Royal Commission having been set up to inquire into the operations of the

Lunacy Acts for England and Wales, and to consider the treatment of Mental Disorder in its early stages your Committee at once appointed a sub-committee to prepare the evidence to be given before it on behalf of the Association. This sub-committee carried out a searching review of the existing conditions in regard to the reception, detention, treatment, discharge and "after-care" under the present Lunacy Acts for England and Wales, and approved of the principles of the Mental Treatment Bill, 1923, with certain modifications. After careful consideration and the fullest discussion, carried out both in committee during the course of seven lengthy sittings, and by extensive correspondence between members, certain recommendations for the amendment of the Lunacy Acts on modern and progressive lines were formulated, and embodied in an exhaustive memorandum which was adopted by the Association. Seven witnesses were appointed, and gave evidence based on this memorandum before the Royal Commission.

Delegates from your Committee have continued to confer with representatives of other interested bodies, with a view to having the Asylums Officers' Superannuation Act amended, and as a result of their deliberations an Amending Bill has been drafted and the principles approved of by the Association. Steps are now being taken to have this Bill introduced into the House of Commons.

The Committee has drawn the attention of the Council to the possibility of a Bill being introduced by the Government to limit the hours of work in certain employments to eight hours per day, and has strongly urged that active measures should be taken by the Association to oppose the inclusion of mental nurses in such a Bill.

R. H. COLE, *Chairman*.

W. BROOKS KEITH, *Hon. Secretary*.

Dr. H. C. MARR said that in France they had a universal eight-hour day in Government services, and he had had the opportunity of going through some of the French asylums, and he found that the doctors in them were antagonistic to the eight-hour day; it had been a source of great trouble to them. He gave some details.

The PRESIDENT said the members would be grateful to Dr. Marr for narrating that experience.

Dr. R. H. COLE seconded the motion, and it was agreed to.

REPORT OF THE LIBRARY COMMITTEE.

Dr. COLIN McDOWALL read this Report and moved its adoption :

During the past year there has been an increase in the issue of books, some members calling for books at the Library, and to others books have been sent as usual by post.

Additions to the Library have been made, both by purchase and presentation. The Committee take this opportunity to thank those responsible for presentation gifts to the Library. The list of additions has been reported from time to time in the Journal.

R. RAYNER, *Chairman*.

COLIN McDOWALL, *Secretary*.

Dr. M. A. COLLINS seconded, and it was carried.

MOTIONS INVOLVING EXPENDITURE OF MONEY.

The PRESIDENT remarked that no money grant had been asked for by the Library Committee. The Registrar found that the clerical assistance he had was inadequate to meet the enormous demands of the nursing examinations, and the Council had recommended a grant of £100 a year in future to meet the cost of the Registrar's office.

Dr. J. G. SOUTAR proposed that the sum of £100 for extra assistance for the Registrar for the expenses of the office be granted.

Dr. G. W. SMITH seconded, and it was carried.

The PRESIDENT said the next matter was a proposal by the Council to show its sympathy with the After-Care Association. He proposed that twenty guineas be granted for that purpose.

Dr. M. A. COLLINS seconded.

Dr. McRAN asked whether there were any other societies which were likely to make an appeal for funds from the Association. In giving a subscription to the After-Care Association a precedent was being set up. Was that After-Care Association operative over the whole country, or was it limited in its scope?

The PRESIDENT replied that its operations were not limited in any sense. Dr. McRAE suggested that there might be appeals from Irish, Scotch, and Welsh bodies.

The PRESIDENT said there was only another similar body that he was aware of, namely, The Mental Welfare Association. It was Government supported, and "after-care" was only a side branch of its work.

Dr. MARR said the Scottish Branch received £700 from the Government. But the After-Care Association in England had no contributions from the Government, and the circumstances were entirely different.

The grant of twenty guineas was approved.

DATES OF QUARTERLY MEETINGS.

It was agreed that the Quarterly meetings of the Association should be: Tuesday, November 17, 1925; Tuesday, February 16, 1926; Tuesday, May 18, 1926.

MAUDSLEY LECTURE.

The PRESIDENT intimated that the nominee for the Maudsley Lectureship for 1926 was Sir John Macpherson, C.B.

OBITUARY.

The late Dr. R. G. Rows.

The PRESIDENT said that they had to deplore the death of Dr. R. G. Rows, the well-known Pathologist of the Lancashire County Mental Hospital, Prestwich.

Dr. D. ORR said he thought that in the death of Dr. Rows this Association had sustained a great loss. He was an indefatigable worker, who had the interests of this Association at heart. The members were aware that he was a collaborator with him, the speaker, for about twenty-five years. During the war he thought no one did more for the soldier with functional nervous disease than did Dr. Rows. He also trained a body of young practitioners, and they were now carrying out work which was largely the result of his teaching. He sincerely hoped that members of the Association would always remember that Rows, although unassuming, was really a great man. (Applause.)

The PRESIDENT said he was sure it was the feeling of members that they would like to send a message of sympathy and condolence to the members of Dr. Rows' family.

This was agreed to by members rising in their places.

The late Dr. W. Maule Smith.

Dr. P. T. HUGHES said it was announced in the previous day's paper that Dr. W. Maule Smith had died. He was Superintendent of West Bromwich Infirmary. Prior to this he was a medical officer at his, the speaker's, mental hospital, and before this at the West Riding Mental Hospital. He was a magnificent worker, especially interested in pathology. His death would be widely regretted.

The late Sir Thomas Clifford Allbutt.

Sir FREDERICK MOTT said Sir Thomas Clifford Allbutt was one of the most distinguished members this Association had ever had. In 1890 he was appointed a Commissioner in Lunacy, and prior to that he had been Physician at the Leeds Infirmary, and of all the physicians of that time he was one of the most outstanding. If he had not been appointed Regius Professor to the University of Cambridge he might have influenced the Board of Control to take up more prominently the medical attitude to insanity. Unfortunately the Act of 1890 had been passed before he joined the Board.

All the members knew the great work which Sir Clifford carried on at Cambridge. He, the speaker, was associated with him for a great number of years as Examiner at Cambridge, first for a short time in medicine, then in pathology, and he had opportunities of seeing what a magnificent man he was. He was a cultured man, and had a wide interest in social affairs, but he never lost his interest in psychological medicine. In fact he believed it was Sir Clifford who was responsible for the establishment of the Diploma in Psychological Medicine in the University of Cambridge. This interest in psychological medicine he retained to the last.

When he, Sir Frederick, drew up the syllabus for the first of eight courses for the Maudsley Hospital, Sir Clifford was kind enough to look it through and express his approval after suggesting a few minor alterations. Sir Clifford Allbutt was a man with an extraordinary sympathy with young men. Though when he died he was old in years, he was young in heart and sympathies, and it was a great privilege and a great charm to be associated with him. He was sure the members of this Association realized what a great man he was, and how much he did for psychological medicine. (Applause.)

The PRESIDENT said he desired to associate himself particularly with what Sir Frederick Mott had just said. Sir Clifford Allbutt, on more than one occasion, was exceedingly helpful to him, the speaker, especially in his younger days. He was sure all would miss him.

A resolution of sympathy was carried, by members again rising in their places.

THE HONOUR TO DR. D. M. CASSIDY, C.B.E.

Dr. ORR reminded the meeting that Dr. Cassidy, who had completed fifty years at the Lancaster Asylum, had received the honour of C.B.E. from the King and L.L.D from his Alma Mater, McGill University. He was now 80 years of age, and yet on going through his mental hospital one found him as keen as a young man and absolutely up to date.

By the motion of Lt.-Col. J. R. Lord the meeting agreed to send its congratulations.

ELECTION OF CANDIDATES AS NEW MEMBERS.

The President nominated Dr. P. T. Hughes and Dr. C. C. Easterbrook as scrutineers of the ballot at the election of new members.

The following were unanimously elected :

GEOFFREY F. COBB, M.R.C.S., L.R.C.P.Lond., D.P.M., M.P.C., Senior Assistant Medical Officer, Staffordshire County Mental Hospital, Burntwood, Lichfield.

Proposed by Drs. T. C. Graves, C. W. Forsyth and Isabel Falconer-King.

ANNE FAIRWEATHER, M.B., B.S.Durh., D.P.M., Assistant Medical Officer, Hollymoor Mental Hospital, Northfield, Birmingham.

Proposed by Drs. T. C. Graves, C. W. Forsyth and Isabel Falconer-King.

JAMES WILSON MURDOCH, M.B., Ch.B.Aberd., Junior Medical Officer, Devon Mental Hospital, Exminster, Devon.

Proposed by Drs. R. Eager, C. F. Bainbridge and W. Starkey.

JAMES MILLAR CRAIG SPEER, M.B., B.Ch.Belf., Assistant Medical Officer, Wilts County Mental Hospital, Devizes.

Proposed by Drs. S. J. Cole, J. W. Leech and W. Starkey.

LANTERN DEMONSTRATION AND DISCUSSION.

The Sympathetic Endocrine System.

Dr. DAVID ORR : In opening a discussion—and that is all I propose to do—on the mechanism of the emotions, I intend to treat the subject entirely on anatomical and physiological lines. I may first clearly define my position to you, and it is this : Pure psychology teach one nothing with regard to the emotions. But physiology and anatomy teach us that emotion and intellectual life—and intellectual life and emotion are absolutely inseparable—depend upon sensory stimuli from birth throughout life.

There are certain areas in the brain which are associated with the registration of visceral impressions ; and I might say that there is no impression from the body—whether it is muscular, joint or visceral—but is registered in the brain, and immediately reacts upon certain organs. We cannot talk now of the central nervous system as a system *per se* ; the central nervous system is intimately connected with the sympathetic system, and that system is intimately connected with the ductless glands. Therefore one might define the whole central nervous system, the sympathetic nervous system and the ductless gland system as interdependent. The basis of this statement will be found in Cahill's work. He has enunciated two laws. One is that of dynamic polarization, and the other is the law of average.

The law of dynamic polarization is this: That an axis cylinder spreads its little collaterals around the protoplasmic processes of the nerve-cells. The impulse passes through the cell, out again through the axis cylinder, and so is passed on through thousands of cells. I believe that no impression is received from the periphery but impinges on every cell in the brain. Otherwise our brains would be chaotic. As every impression reaches the brain it is accompanied not only by its own specific sense, but by an emotional content. There is no such thing in the human mind, or even in the animal mind, as a negative impression; it is either pleasant or unpleasant. If the reaction is unpleasant, at once there is an emotional reaction, which is transmitted to the sympathetic system, and the ductless glands at once respond.

This is accomplished by a very complex system. There are impressions going down the spinal cord, spreading out through the anterior roots and into the white rami of the sympathetic system, and so outwards. At the same time sensory impressions are proceeding from the viscera resulting in reflexes, which are just as much reflexes as those called sensory-motor. That is to say that the vegetative system possesses its reflexes just as much as does the system which we call our life of relation, i. e., our life of relation to the outside world. But the vegetative reflex constitutes our reflex system with regard to our inside world. And it is of the utmost importance and should never be forgotten in treating our patients from the physical side.

I now draw your attention to those ganglia situated just between the posterior and the anterior horns; it is there that those impressions from the viscera are registered. The main tract is the intermedio-lateral tract, and it exists in the spinal cord between the first dorsal segment and the second lumbar, from which the ganglionic chain fibres pass out. The fibres that pass into the cord arborize around the sensory cells in the posterior root ganglion. One of the special types that is concerned with this visceral mechanism is the little group of cells described by Dogiel. It was denied for many years that the vascular system, in the central nervous system and otherwise, had sympathetic fibres. I think I pointed out to this Association some years ago that von Recklinghausen was convinced that a great deal of the inflammatory phenomena which took place in various organs was under the influence of the sympathetic system; and Prof. Gulland, of Edinburgh, as far back as 1895 showed me some sections in which he had demonstrated sympathetic fibres, or at any rate fine fibres in the pia arachnoid of the brain, stained by Gangee's method. In a recent work Muller has pointed out that in the pia arachnoid of both the cord and the brain and the choroid plexus there is a system of fine sympathetic fibres. I show you these fibres in these slides from the pia arachnoid of the temporal lobe, the pia arachnoid of the cord and in the choroid plexus. They are present in the next, which is a series of ganglia taken from the continuation of the choroid plexus down the iter. Also again in the fourth ventricle there is the same system of fine fibres, with a ganglion here and there. I also show you another variety. When you come to consider the vascularity of the brain—and I throw this on the screen to show how vascular the brain is—you will see it is clearly unphysiological for us to believe that such a vascular system could not be under nervous control. Consider for a moment what happens in what may be called a nervous upset, which must reverberate throughout the whole of the nervous system. It reverberates through the whole sympathetic system and influences the ductless glands, which glands at once react and throw out their secretions, possibly chemically altered, into the arterial system, with the result that there is established a vicious circle. And one has only to remind oneself of the curious nervous symptoms which we found in the soldiers during the war. I have known a soldier, as he developed acute mania, develop at the same time an acute thyroid enlargement, which subsided as his mental attack abated.

As a proof that the pia arachnoid is supplied with sympathetic fibres, I show you a section, taken from a rabbit, in which I cut the sympathetic and then injected toxins. Take the olfactory area, or the pallium. You will notice it is only the areas which are supplied by the pia arachnoid that show a lesion, which is dotted out in red. Why the other areas should not show lesions I do not know. That is as far as I have got in that work.

Here is a section of a rabbit's brain, and you will notice in the pia arachnoid that the vessels are quite normal, and apparently they are not dilated. But in the

next section the sympathetic has been cut, and at once the congestion of the pial vessels is apparent. And if you go a little further and cut the sympathetic on one side of the brain, and then inject an organism into the ear of the rabbit, you find at once lesions all over the brain. But you will notice that the choroid plexus is packed with outpouring lipid bodies, which shows that the choroid, though it is concerned with the development of the nervous system in the physiological sense, is concerned also with the problem of immunity. This is important to remember, because in infectious diseases we know that the myelin sheath of the cord may temporarily degenerate. But we also know that under treatment, rest, etc., the myelin sheath regenerates, and it can only do so through the influence of the choroid plexus.

And *here* is an experiment done under exactly the same conditions. You see the ependymal lining of the iter, and you can see that the neuroglial cells under the ependyma are very active. But on the large structure at the top and along *here* is a large outpouring of lipid material, which will apparently act as an immune body, or will assist in repair. The point I want to make is, that in the study of emotion we must look at it in the physiological sense. Perhaps intellectualism is disturbed first, but remember the sensory stimulus awakens the emotion, and also awakens everything connected with the central nervous system—the sympathetic system, the ductless glands. Therefore I am trying to put on an anatomical and physiological basis the fact that we psychiatrists have always said to ourselves, "Do not pay so much attention to the psychological side; rather let us study our patients from the physiological point of view." And I might sum up my remarks by asking, "Has anyone ever encountered a case of mental disturbance in whom there has not been emotional disturbance?"

The PRESIDENT said he would content himself with congratulating Dr. Orr on his lucid demonstration, and asked members who were more conversant with the matter to make some observations.

Sir FREDERICK MOTT said he had listened to Dr. Orr's demonstration with a good deal of interest, because that gentleman thought very much as he did himself—that cases should be studied from a biological point of view. He was particularly interested in Dr. Orr's remarks about the supply of vessels of the brain with sympathetic fibres, because many years ago he, Sir Frederick, was able to show that the vessels of the brain had abundant sympathetic fibres. He was interested in Dr. Orr's remarks about the choroid plexus, because when he, the speaker, gave the Oliver Sharpey Lectures at the College of Physicians on the cerebro-spinal fluid, he showed specimens of the choroid plexus with the nerves stained by the Dogeill method. Some little time ago he was asked to write a review of a book on human character, by Hugh Elliot, for the *Edinburgh Review*, and he had to state the matter to laymen in a rather simplified manner; but it agreed completely with Dr. Orr's explanation. In that review he said we had first to remember that stimulation of the nervous system might lead to impulsion or inhibition, and that the mind might be considered to be in the whole body, though psyche was in the highest level, the cerebral cortex. It was by the harmonious interaction of all the cells and tissues of the body that mind was exemplified. He further said, in that review, that if one considered the internal secretions of the ductless glands one found there were two groups, the hormones and the chalones. Action took place through the vegetative nervous system, and the vegetative nervous system could not be separated from the cerebro-spinal nervous system. As Dr. Orr had clearly pointed out, the anatomical relations were so intimate that one could not be separated from the other. He, the speaker, likened the secretions of the ductless glands to a postal system—diffused, and very essential to the whole body. The postal system must always go on. It was slow, but it spread everywhere.

There was another system intimately related to the vegetative nervous system, the bulbo-spinal segmental protopathic system, which might be likened to the telegraphic system of the Post Office. There was a much more precise determination of action, but it was slow in delivery because the involuntary system was slow in response. Then there was the epicritic system—the quick, very precise telephone system in which the response was immediate.

The results of Dr. Orr's work with regard to the regions supplied by the sympathetic where the lipid change was found, showing a reaction in that particular region, were of extreme importance. He was pleased to find that a superintendent

could still find time, amid his multifarious duties, to devote attention to research, and he hoped Dr. Orr would be able to continue that work. He was conducting it on lines which were essential. As Dr. Orr pointed out, the vegetative system was always operating; it was only when there was some alteration in the periodic character of the action that one became aware of something—a heart-beat out of the normal, or air-hunger, and then attention was summoned to afford relief for the difficulty or the discomfort, whatever it might be. It was acting automatically all the time, and as soon as mind intervened one knew of the effect. It was seen in the "D.A.H." of the soldiers, and in the way in which fear acted on the endocrine system. He saw numerous examples of enlargement of the thyroid, a rapidly-acting pulse and sweating, all the signs of Graves's disease; yet as soon as the terrifying dreams ceased all these symptoms of bodily change as a result of this fear disappeared too.

All would wish to congratulate Dr. Orr on this valuable communication, and he hoped that gentleman would continue on those lines to help forward this idea, which was becoming more prevalent now, that every case should be studied as a biological entity, and classification should be left alone.

Dr. C. C. EASTERBROOK also desired to thank Dr. Orr for his very interesting demonstration. He thought the recent work which had been done on the innervation of the striated skeletal muscles invalidated the Lange-James theory of emotions. According to the work of Royce and the late Prof. Hunter, the skeletal muscles consisted of two distinct sets of fibres: (1) Striated fibres which were innervated by the medullated somatic fibres, which produced voluntary movements of muscle and maintained reflexly their contractile tone, and (2) finer striated involuntary fibres, which were innervated by sympathetic fibres and maintained reflexly the plastic or postural tonus of the muscles. The third element present in muscles was the muscle spindles, which apparently consisted largely of these finer plastic fibres. They had a large medullated nerve-fibre, which was the nerve of muscle-sense. They also had an efferent sympathetic innervation, which maintained the lengthening and shortening of the muscle-spindles imposed on them by the movements of the voluntary contraction of the muscle. The Lange-James theory was that the physical basis of emotion was the muscles expressing emotion; but this recent work showed that there was something wrong with that explanation. It was in keeping with common sense that before anybody could experience emotion he must sense the circumstances or the danger—whatever it was—before he could respond in the form of an emotion. Therefore one's impression was obtained through the sense of sight, or the sense of hearing, etc.: the message went to the sensorium, and messages were sent to the ductless glands, especially the adrenals, which secreted adrenalin, resulting in the liver supplying sugar to the muscles and to the blood-vessels of the body, constricting the abdominal vessels and setting more blood free, so helping the muscles and the brain. That was done as soon as the sensorium received an impression acquainting the individual with the situation of danger. And messages also went out to the voluntary muscles and brought about the movements of defence which helped the individual to deal with the situation and the emotion roused thereby.

It seemed curious if the feeling of emotion—fear, anger, or whatever it might be—should be produced as the result of a voluntary movement of muscles which brought about the natural position of defence, *i.e.*, that the muscles should be responsible for an emotion which it would be to the advantage of the individual to control.

Dr. W. F. MENZIES said that in rendering thanks to Dr. Orr for his demonstration he wished to allude to one point, which was that of the innervation of the cerebral vessels. It was generally assumed that the very fine fibres seen in the vessel walls, spinal cord, nerves, etc., were sympathetic. There was a school which thought they were not, but that they were protopathic. He had been much struck by an article in the last number of *Brain*. The cerebral vessels were looked at by direct microscopy, a magnification of 100 diameters, and they showed absolute absence of reaction to either mechanical or chemical stimuli. This had an intimate connection with the reaction of the brain vessels to those in the splanchnic area; and the question arose as to whether there was only an afferent supply to the cerebral vessels. The knowledge possessed concerning the afferent sympathetic system was so fragmentary that it was difficult to formulate an opinion, but he thought it possible that there were no efferent sympathetic

fibres, but there was a very well-developed afferent system, and he considered this responded to the various emotions, as Dr. Orr had shown, and that when the blood tension in the cranium was required to be altered this could be brought about entirely by the efferent sympathetic in the splanchnic area.

Prof. G. M. ROBERTSON expressed his regret that he had not been present to hear the whole of Dr. Orr's address, but with what he had heard he was much impressed. With regard to Dr. Orr's last remark, asking whether any had seen mental disorder which was not accompanied by emotion, he thought that was a very important question, and it fitted in well with the other part of the contribution. The only form of mental disorder which most people in the past had regarded as not being accompanied by emotional disturbance was paranoia, of the apparently purely intellectual type, without any emotional disturbance at all. On that particular subject he thought that one of the finest presidential addresses the Association had ever had was that delivered by Dr. Percy Smith, in which he went into the whole subject of paranoia, carefully dividing intellect, emotions and the will in the various forms of what was then known as systematized delusional insanity. But it had always seemed to him, the speaker, to be a mistake to suppose that there was no emotional element in every case of paranoia. It was admitted that these cases tended to develop in persons having a particular temperament or character, and this was sometimes called the paranoic character. This paranoic character was nothing more or less than that of a person in whom there was a morbid feeling or emotion of a particular kind. It might have been, in some cases, vanity, in others suspicion, in others irritability, but so slight that under ordinary circumstances and without careful thought one did not regard the person as being under the influence of any emotion at all, simply because the individual did not express it in the features or in the general expression. But not a moment passed in the day when all of us were not subject to emotion; every moment we were experiencing emotions of various kinds. The people in question were those with a morbid disposition, in whom one particular type of emotion overcame all others. The result of this was that the intellectual operations of these people were changed by this pervading emotional feeling, so that, in the end, one person took a vain and elated view of things, and imagined himself to be more important than were other people or than other people thought him to be. Or he might have suspicions, slight, but always present, so that in the end he supposed himself to be surrounded by suspicious circumstances, and it was easy for him to suppose that his neighbours were persecuting him—that if two people were seen by him to be talking together, the burden of their conversation was a conspiracy to do him harm.

So, though it was thought at one time that this form of insanity was not accompanied by emotion, it now seemed clear that this, along with other forms of mental disorder, had a distinct emotional basis. It was now agreed by psychologists that there was not a thought passing through the mind nor was there any act carried out which was not accompanied by emotion. It was impossible to say which came first. No mental state could be analysed without including in that state both intellect and feeling, and also will or striving. For example, in such a simple matter as saying that two and two make four there was some satisfaction, and when the sum was more complex, such as the result of 13 times 13, there was a feeling of unhappiness when the answer was not forthcoming, followed by one of elation when the solution was found. Therefore emotion was a mental element which we could not get away from under any circumstances, and it played a great part in all morbid mental conditions. Also, the psycho-analysts themselves laid great stress on the emotions, because they said a complex was an unconscious process accompanied by a strong affect.

Lt.-Col. J. R. LORD said he was more particularly interested in this subject as bearing on the development of psychiatry for the future. While he did not feel competent to talk very deeply on these physiological problems, he felt bound to say that really so little was definitely known about the processes underlying what was called insanity that one could not afford to neglect any avenue whereby further knowledge could be acquired. He thought one of the chief mistakes of workers in this and other fields had been to specialize in one direction of investigation to the neglect of others. And when he heard Dr. Orr say that this sympathetic endocrine system should be concentrated upon in the future as the most promising he felt he would like to put it in this way: that this field should be added to the other fields of psycho-physical research and all concentrated upon. There

had been much unbalanced knowledge advanced on problems of the mind and conduct, and he thought that had been due to the fact that the workers on one aspect of the subject had not had regard to what was being done in other directions. For instance, to neglect the introspectionist methods of investigating psychological problems was a mistake. He would say study them physiologically and pathologically by all means, but the knowledge thus gained was of little value, even dangerous, unless correlated with that gained by introspective methods and by human experience. The poet, for instance, was a great psychologist, and sociologists had a knowledge of the human mind of a kind which psychiatrists were prone to ignore and think of little importance. They could not afford to neglect social psychology. He, the speaker, would like to see psychiatrists looking at these problems of the human mind from a broader and more biological point of view, as he was sure this would help them considerably when they looked down the microscope, and particularly when appraising the results of experimental psychology.

Dr. ORR, in replying, said he was very glad that this short communication had led to some discussion. With Sir Frederick Mott and Dr. Easterbrook he was in agreement. With Dr. Menzies he felt himself somewhat at variance. He was not aware that only afferent fibres came from the vessels, and that there were no efferent fibres; but perhaps he had misunderstood that gentleman on that point. Prof. Robertson had made some very interesting remarks on paranoia, and he agreed with that speaker that the paranoic was an emotional subject.

As to Lt.-Col. Lord's remarks on introspection, he would recommend everybody to read the *Tales of Mystery and Imagination* by Edgar Allen Poe. It was simply full of introspection, and really an education.

One point he had forgotten to touch on. He should have remarked, in regard to emotions, that the normal person might suffer from a very intense emotion; he might feel incensed at something, he might feel that he would like to hit somebody. But he also reflected, "No, I must exercise my inhibition," and so the emotion was governed by inhibition.

The PRESIDENT said the views which had been brought out by the discussion showed the necessity of such an Association as this, to combine those from different spheres of work—the union of the clinical and the physiological with the psychological. With regard to paranoics and emotion, it was not so much the absence of emotion in them as the misplacement of emotion that was important; in them the emotion had not a proper place.

AFTERNOON SESSION.—TUESDAY, JULY 7.

At the University Buildings, Edmund Street, Birmingham.

THANKS TO THE RETIRING PRESIDENT AND OFFICERS.

Prof. G. M. ROBERTSON said it was his pleasant duty to propose a vote of thanks to the retiring President and Officers of the Association. He, himself, had now been a member of the Association many years, and he had never known anyone elected to the post of President whose election gave such universal satisfaction as that of Dr. Nolan. Dr. Nolan had a personality which had endeared him to every one of the members, and further he thought all were glad to appoint a president from the Sister Isle. The annual meeting which took place at Belfast was one of the most successful he ever remembered—and he had attended most of the annual meetings during the last twenty years. The Presidential Address which Dr. Nolan gave on that occasion indicated to all who heard it what a fine philosophic mind he had. It was an address which he was sure every member perused afterwards with the very greatest interest and instruction. In connection with that meeting members visited Dr. Nolan's mental hospital at Downpatrick, and saw there the tangible results of the fine personal qualities which the President possessed. That mental hospital was an eye-opener to many who saw it; it was second to none in the country. It showed evidence of his complete medical knowledge as to what should be done in every department of a mental hospital, and it also showed his fine judgment in regard to administration and as to what should guide his Committee concerning the management of a hospital. It was designed on a large scale, was picturesquely decorated, it was exceedingly comfortable, and it was evident to all who visited it that the relations between his staff, the patients and our President were most cordial.

Dr. Nolan had been exceptional among the Presidents of this Association in one respect, a respect which the speaker hoped would be followed by all who succeeded him in the presidential chair: he had presided at quarterly meetings in all the main divisions of the Kingdom, in England, in Scotland and in Ireland. And they in Scotland were particularly grateful to him for the honour he did them in deciding that one of the quarterly meetings should be held there. On that occasion the speaker considered that the meeting was very successful, and the members in Scotland did all they could to do him honour. The members of the Scottish Board of Control turned out to a man, the only exception was the Chairman of the Board of Control, who, unfortunately, was unable to be present owing to illness in his family.

He could assure Dr. Nolan that he retired with the knowledge that he had discharged his duties in this important post with great dignity and judgment, and he had aroused a feeling of gratitude in all the members of the Association.

He wished next to refer to the Hon. Treasurer, Dr. Chambers, who, unfortunately, had been indisposed for a considerable time. But, in spite of his indisposition, he had continued to take the same interest as he had always done in the affairs of the Association, and had still looked after its financial affairs in an efficient way. He was glad to learn that Dr. Chambers was now very much better, and that there was every reason to suppose that in a very short time he would be restored to full strength and vigour, and would again be seen at the Association's meetings. His position in the Association was unique, so that the speaker could not adequately express the feeling of indebtedness which members had towards him.

The work of the Secretary was multifarious, and it was difficult to know how he could manage to get through all the departments of activity which he had to superintend. Like his game of golf, Dr. Worth drove a long and straight ball through the fairway of the secretarial work which he had to perform, and if he occasionally found his way into a bunker by bad luck, or perhaps in his case by over-driving, one found he was as useful with his niblick as with his driver, as he got out of the difficulties. Prof. Robertson thought that under Dr. Worth's guidance the affairs of the Association had been well managed, and he had got round the 18 holes with success, and so far, he thought, they had won their matches.

He had also to thank the Editors of the Journal, and most especially he desired to thank the senior Editor, Lt.-Col. Lord. He also, unfortunately, had been in indifferent health, but in his case also that had not prevented him doing justice to his work, and the Journal had been extending its circulation and improving in its quality and increasing in bulk during the last year, and therefore members had to thank him very much and to congratulate him on his prospective promotion.

He had also to thank the Registrar of the Association. They still had to deplore the loss of one of the most beloved members of the Association, Dr. Miller. He thought the meetings would never again be the same as they were when Dr. Miller attended them so regularly, when all were so pleased to enjoy his genial presence. He had been succeeded by Dr. Rambaut, who, he thought, had carried on his work most efficiently. The taking over of such a large department as this—and none realized how large it was under Dr. Miller's supervision because he said so little about it—had been attended with the minimum of friction or disturbance, and for that the Association had to thank Dr. Rambaut, and it was also due to the fact that Dr. Miller and Dr. Rambaut had been lifelong friends.

And there were many others who had helped the Association during the past year and to whom thanks were due. Among them were the Auditors, who, he believed, had to perform a useful duty, but probably, as far as results were concerned, it was a sinecure. Still, it was a necessary work.

There were also the Chairmen and Secretaries of the various committees, and the Secretaries of the Divisions. They performed a large amount of very useful, important and necessary work. He did not think the Association usually realized to what extent it was indebted to the Secretaries of the Divisions and to the Secretaries of the various committees. Every now and then a special investigation was made in a particular department, such as nursing, or education, or Parliamentary work, and then these Secretaries had to do a very large amount of work, and he wished most particularly that they should receive members' thanks and a full recognition of the work they did.

And lastly he had to make reference to the work of the Council. They also deserved the thanks of the Association. In this connection he wished to refer

particularly to one point—and in doing so he desired to exclude himself altogether, as he was proposing a vote of thanks. The point was that he thought the Association should realize—and he did not think it did adequately realize—how much it owed to those members who came so regularly from Ireland and Scotland to attend these meetings. The ordinary members of the Association paid a certain subscription, a very small one, considering the benefits they received, and the fact that the advantage of having the Journal was thrown in. But, over and above that, one had to consider that the members who came to the meetings so regularly and faithfully from Ireland and Scotland must spend from £20 to £50 a year in order that the Association should be regarded as one embracing the whole of the United Kingdom and they contributed in various ways to the success of the Association. No doubt some of them, after coming such a distance, had a good deal to say, and they appreciated the patience with which members of the Association listened to them, and allowed them, in a paternal way, to have their own way in small matters.

And he wished to make the following remark to the meeting in conclusion: it was a remark which he discussed with his friend Dr. Bedford Pierce at dinner the previous evening. He did not know any association whose work was so well done, whose proceedings were carried on so harmoniously or pleasantly as the Medico-Psychological Association. There was a good reason not only why members should be pleased with themselves, and also why they should congratulate the Association's officers on having done so much for their members.

Dr. F. R. P. TAYLOR said it gave him much pleasure to second the vote of thanks to the retiring President and Officers which had been so eloquently proposed by Prof. Robertson. After what had been said he did not propose to occupy further time in enlarging on the good work which the officers and Council had done. But he did hope that when Col. Lord stepped into the Presidential Chair it would not interfere with his activities as Editor of the Journal; if it did, he was sure members would miss him in that office very much.

Carried by acclamation.

The PRESIDENT, in acknowledging the vote, said he had never felt so unworthy of the high honour which was placed upon him a year ago, than when he had to listen to eloquent and flattering remarks to-day from Prof. Robertson. He, the speaker, wished he could exclude himself from this vote; it should be possible, because the President had remarkably little to do with the working of the Association; he relied upon its more or less permanent officers, and no officers could have worked more efficiently and zealously than had those of the Association. On their behalf he tendered warm appreciation of what had been said.

INSTALLATION OF THE NEW PRESIDENT.

Continuing, the President said he now came to his last official act. When leaving this world it came naturally to us to bequeath all we valued most to those we esteemed highest, and so, at the close of his year of office, nothing could gratify him more than to hand on the Presidential Badge to his most distinguished successor, Sir Frederick Mott. He felt at a loss what to say of him: there was at once so much and so little to be said. On the passing of one of Ireland's famous sons a large sum of money was offered for the most suitable and eloquent inscription for the magnificent monument erected to his memory, and many sought, in ornate language culled from many tongues, to give expression to a nation's appreciation and affection of the dead tribune. The prize-winner sent in but the one word, "O'Connell." So also it would suffice to name "Mott" to the meeting to-day, but, happily, he was still among them to hear their praise. Recently the Public Orator of Dublin University, when introducing the recipient of an honorary degree, said, "A fair thing indeed is that kind of life which the Greeks call speculative; a fairer thing is, perhaps, that life which they called practical; but, unless I err, the fairest thing of all is the union of the speculative and the practical in the same person." Of such a union Sir Frederick Mott was an outstanding example; splendidly speculative and profoundly practical; perhaps more accurately, but with loss of alliteration, profoundly speculative and splendidly practical. Here any detailed reference to his prolific scientific work, his original achievements and his many academic distinctions would be superfluous. Every one of his hearers must of necessity be familiar with his triumphal progress, for his reputation was international. For many years he had shown a whole-hearted interest

in the aims and objects of the Association, whose proceedings he had enriched by generous contributions and rendered valuable by constructive criticism. Members knew, too, how liberally he had, in a less public manner, encouraged aspirations of younger workers, ever ready to give enlightenment to those less richly gifted, and who were working in more limited spheres. Hence the Association had seized the opportunity to mark, in the highest degree in their power, not only their appreciation of his splendid scientific labours, but also of his personal qualities, and he came to it richly laden with honours—from His Majesty the King, from foreign rulers, and from many world-wide learned societies.

So much for the man; now a word as to the moment. Sir Frederick had come to the chair at a time when it was essential that the Association should have at its head one who was the living embodiment of all that it strove and stood for—the advancement of mental science in its practical bearing on disordered minds. As a band of crusaders in that noble cause, the Association had the good fortune to possess as its trusty leader a doughty knight, bearing on his shield the motto "Excelsior." The President trusted that the lance Sir Frederick was taking up to-day as President of the Medico-Psychological Association of Great Britain and Ireland might be laid down by him as the first President of the Royal Medico-Psychological Association. (Great applause.)

[He then invested Sir Frederick Mott with the Presidential Badge, and Sir Frederick Mott took the Chair.]

THE PRESIDENT (SIR FREDERICK MOTT) said he was unable to express his state of feeling at the praise he had received from the President. He felt it a great task to follow such a man, as he had not had the same experience, but he wished to assure members that he regarded it as a great honour to have been elected President of the Medico-Psychological Association, and he would do his best to live up to the standard set by his predecessors, including Dr. Nolan.

The President then delivered his address (*vide* p. 631).

DR. R. PERCY SMITH said he had been asked to propose a vote of thanks to Sir Frederick Mott for his most instructive and interesting address. He, the speaker, looked back to the time when Sir Frederick was appointed Pathologist to the Mental Hospitals of the London County Council; at that time he, Dr. Percy Smith, was Senior Medical Officer at Bethlem Hospital. Members were all thoroughly familiar with the work which Sir Frederick had done ever since he was connected with the London County mental hospitals, and the great work he was instrumental in doing in the establishment of the Maudsley Hospital by his influence with Dr. Henry Maudsley. There the work which was originally carried on at Claybury was continued, and now Sir Frederick was doing much the same thing at Birmingham. All he did was always done with the most consummate care; and, whether one agreed entirely with his conclusions or not, one had the greatest admiration for the splendid work he had accomplished.

It was not the function of the proposer of this vote of thanks to discuss the address. It was necessary to see it in print, as it contained a great deal of material for reflection. He was sure all would look forward to the next number of the Journal, when the address would appear in full. He therefore asked members to accord to the President a most hearty vote of thanks, and he was sure all would congratulate him on being in the Chair of the Association, and would feel that during his year of occupancy the Association would maintain its high standard of work.

DR. F. H. EDWARDS said he would like to have the pleasure of seconding this vote of thanks. He did not propose to add anything to what Dr. Percy Smith had said, but members did realize that Sir Frederick was an ornament to the chair, as great an ornament as had sat in it during the time he, the speaker, had been a member of the Association.

LT.-COL. J. R. LORD said that as the one there who, with the possible exception of Dr. Bond, had been the longest associated with Sir Frederick Mott and his work at the London County mental hospitals, he would like to ally himself with this vote of thanks. There had always been one point he admired about Sir Frederick Mott's work, namely, the ease and the readiness with which he would abandon a promising line of work immediately it seemed likely to lead to a fallacious result. For that reason one had always felt one could depend on the soundness of his premises.

The vote was carried by acclamation.

The PRESIDENT, in acknowledging the vote of thanks, expressed his appreciation of the patience with which members had listened to him. Dr. Nolan, in referring to his, the speaker's, work, said there was a good deal of speculation as well as work. He thought one must have some imagination. Probably with much of what he had said in his address many members might differ; still, it was based on premises which he hoped would stand the test of future research. If that did not prove to be the case, then those premises must go, and Col. Lord had paid him the compliment of saying he had taken that attitude on all occasions.

He thanked Dr. Percy Smith, Dr. Edwards and Col. Lord for their appreciative remarks in regard to the address.

RECEPTION AT THE UNIVERSITY.

In the evening the Council and Senate of the University held a reception which was largely attended by members and their friends. The guests were received in the Founders' Room by the Vice-Chancellor, Col. Sir Gilbert Barling, Bart., C.B., C.B.E., M.B., F.R.C.S. and Miss Barling. There was music and later refreshments were served in the Students' Club. A very pleasant evening was spent.

MORNING SESSION—WEDNESDAY, JULY 8.

At the University Buildings, Edmund Street, Birmingham.

The PRESIDENT in the Chair.

PAPER.

Encephalitis Lethargica and its Psychological Implications, by Dr. G. A. AUDEN (see p. 647).

The PRESIDENT said he was voicing the feelings of the meeting when he said members were intensely obliged to Dr. Auden for this most illuminating paper. It was a subject of great interest and importance at the present time, and it had been presented by one who had had a large experience, and who had studied the disease in a way which was altogether admirable. He had been particularly pleased to hear this paper, because he was himself much interested in the subject. He had only had the opportunity of seeing comparatively few cases. He hoped later to show some slides. He had had the opportunity of seeing a good many cases of sleeping-sickness due to trypanosomiasis, and the lesions in this latter disease were very similar to those met with in lethargic encephalitis; and some of the symptoms also were similar, especially the lethargy.

It was clear from Dr. Auden's paper that there were material lesions which probably accounted for the symptoms and the change of character which occurred in this disease in so many instances. He thought it likely that many would wish to take part in the discussion on the paper, therefore it would be adjourned until after the ceremony of laying a wreath in the name of the Association in the Hall of Memory.

[The meeting was adjourned accordingly.]

CEREMONY AT THE HALL OF MEMORY.

The President, officers and members of the Council and other members attended at the recently erected Hall of Memory, to lay a wreath in commemoration of the sacrifices made by the citizens of Birmingham in the Great War. The wreath bore the words:

"To the City of Birmingham, from the President, Council and Members of the Medico-Psychological Association of Great Britain and Ireland, as a tribute to the memory of those who fell in the Great War."

In performing this function, the PRESIDENT said:

"As President of the Medico-Psychological Association of Great Britain and Ireland, now meeting in this city, I have been requested by the Council, officers and members of the Association to express to the City of Birmingham its sympathetic feeling for all the brave men of this city who died for their country. We are conscious of the important part that this great industrial area played in the Great War, and we realize in this beautiful 'Hall of Memory' a lasting monument to all those who gave up their life, to all those whose health has been shattered and who still live, and to all those parents who mourn for their sons, and for the

widows and orphans. I need not remind you that all the members of this Association, excepting the too aged, played an active part, both at the time and after, in relieving the wounded soldiers and those suffering from shattered nervous systems. I deem it, therefore, a great privilege to be allowed to place this tribute in the Hall of Memory, on behalf of the Medico-Psychological Association of Great Britain and Ireland."

Lantern Demonstration of the Lesions of Lethargic Encephalitis. By Sir FREDERICK MOTT, K.B.E., F.R.S.

The PRESIDENT showed a number of slides bearing on the subject. The first was from Prof. Wimmer's book on epidemic encephalitis, showing the tracts which were involved. The lesion was in the mid-brain, affecting the substantia nigra and red nucleus and the aqueduct of Sylvius. There were also changes higher up in the tracts coming from the basal ganglia. The cortex in these cases was usually unaffected; still, sometimes one found inflammatory changes in the cortex. One characteristic about this disease was that the meninges were not affected, and therefore one did not expect to find lymphocytes and polymorphonuclear leucocytes in the cerebro-spinal fluid.

The next slide showed the characteristic lesion found in the mid-brain, especially in the medulla and pons. This disease was described by Oppenheim as pontobulbar encephalitis, because the changes now shown were found in the pons and the bulb. The spaces in the vessels and the perivascular infiltration led one to think there were hæmorrhages, but in this specimen there were no hæmorrhages, though punctate-looking bodies were seen throughout the mid-brain, the pons and the medulla. Sometimes a hæmorrhage did occur. There is a lymphocytic infiltration in the perivascular spaces, like the lesion met with in true sleeping-sickness due to the trypanosome and the tsetse-fly, and in much the same situation. The same was seen in general paralysis, though in the latter the lesion was in the cortex of the brain, especially, and not in the mesencephalon, pons and bulb. That accounted for the lethargic condition met with in the other two diseases and not in general paralysis.

The next section also showed, in the mid-brain, perivascular infiltration and congestion of the vessels. To the naked eye the dots looked like punctate hæmorrhages. A group of cells could be seen in the neighbourhood of that inflammatory area and there were considerable changes in the ganglion cells. The changes in the ganglion cells depended on the proximity of inflammatory changes. Therefore one often found, especially in the nuclei of the third nerve and around the aqueduct of Sylvius, an explanation of the fact that sometimes there was one muscle affected on one side and another muscle on the other side. There could be seen a considerable amount of inflammation around the vessels, and neuroglial proliferation may also be seen. Two cells could be seen in which the dendrons had broken off, and there was considerable swelling and absence of Nissl granules, with evident changes in the cells.

He next showed, under a much higher power, a cell in which vacuolation had occurred.

A characteristic phenomenon in lethargic encephalitis and in the trypanosome sleeping-sickness was the lethargy and sleepiness, and in both there were lesions in mid-brain, pons and medulla. In these latter were important tracts and nuclei connected with the static sense, with gravitation, fibres from the labyrinth connected with the cerebellum and Deiter's nucleus, which sent out impulses to all the voluntary muscles, producing voluntary muscle tonus. A lesion affecting stimuli by interfering with the conducting paths of that sense would tend to cause sleep. When one felt drowsy, the jaw dropped and the eyelids closed, the head drooped, the muscles were relaxed, and this relaxation of voluntary muscles prepared the way to sleep. It also meant a lowered basic metabolism, and everything favouring a recuperation of energy throughout the whole body. He put the point forward for discussion; he had already mentioned it in a paper on sleeping-sickness.

Dr. Auden's paper was a most valuable one, and it had opened up some new ideas. A number of people were now seen coming into mental hospitals of a type which did not go there before, apparently, and the same was true in regard to myxœdema, and it had not been recognized in the latter case until it was pointed out by Kocher. He himself conducted a class on neurology at Camberwell Infirmary,

and he was told there was a case of Parkinson's disease. As it was a typical case in a woman aged 35 he made further inquiries, and he found it was typical lethargic encephalitis. She had had an illness which was called influenza, and following that she had squint. The squint passed off, and she experienced a drowsy feeling, and then this particular affection of the extra-pyramidal system. He did not doubt there were many instances of the same condition throughout the country. Evidence was available that the disease had been in existence 300 years in the form of epidemics.

Dr. P. C. P. CLOAKE (Queen's Hospital, Birmingham) expressed his appreciation of having been invited to discuss Dr. Auden's paper. He had been much interested in the subject, and for eighteen months he had been working at it, with the aid of a Medical Research Council grant. In the mass of literature which had collected round the subject he had not seen any paper which had dealt so lucidly and so convincingly with the aetiology and the symptoms of the disorder as did the paper read that morning. It was a great pleasure to him to be able to say that his own line of work had led him to almost identical conclusions to those Dr. Auden had put forward, and which had not previously been advanced in such detail.

One had to look at the symptoms of encephalitis lethargica firstly from the standpoint of the acute disorder. He thought all who had worked on the mental symptoms of the acute disorder were agreed that these belonged to the great group of organic mental symptoms which could be classed as toxic or infectious in origin. The delirium which he found in a large number of his acute cases was seen also in other forms of acute disease. As a general rule, when delirium occurred in acute diseases it was associated with pyrexia, but in encephalitis pyrexia was often absent in the acute stage, though the mental symptoms were similar to those in other infections with a febrile condition. The reason of that probably was that the infection fell with greatest weight on the brain. The delirium, which was a combination of a disordered grasp of external events and an increased psychic activity, was probably due to the toxæmic condition. In addition there was the characteristic symptom, lethargy, which occurred, in most cases, in the acute stage. Lethargy also occurred as the commonest of all the sequelæ of encephalitis lethargica. It occurred in some degree in almost all of a series of 50 to 60 cases; *i.e.*, a slowing of the mental processes, combined, usually, with a slowness of speech and of movement, and sometimes there was disorder of automatic functions, such as those of walking, breathing, swallowing, etc.

Dr. Auden had put forward a suggestion which appealed to him, Dr. Cloake, very strongly, namely, that in many cases, in the mental sequelæ of the disease, one had the manifestations of regression due to abolition of inhibition of higher functions. He could not now go into details, but he thought some other adjuvant theory must be admitted, too. He had suggested that one had to look at mental function generally as consisting of a hierarchy of levels of function. The highest were those which had been most recently acquired and those which one would expect to be earliest abolished in any form of disease. The difficulty arose, as was seen in Dr. Auden's figures, in the fact that the purely intellectual functions were so little disturbed in this disorder. The emotional and social reactions of the patient might be very gravely upset without any corresponding disorder on the intellectual side of the mind. Yet he thought one would have to regard the intellect as being one of the highest functions and, certainly in its highest phases, one of the most recently developed of the mental functions. Therefore he thought one had to consider that toxæmia falling upon the nervous system, in so far as it manifested itself in psychic disorders, must be taken up as a separate line of study. If other forms of toxæmia were considered, *e.g.*, alcohol and the toxins of other diseases, then one found a general similarity between the symptoms of the various toxic affections. But the mind did not react in identical ways under the stress of the different toxins which were liable to affect it. In other words, one had to consider that the mind split, or was disordered, differently under the influence of different toxins. It might be that on investigation it would be found that there was a corresponding difference in the effect of the toxins on the neurological structure of the brain. For instance, in encephalitis lethargica the commonest effect was the damage done to the mid-brain. In alcoholic conditions and in general paralysis and other disorders the maximum damage did not fall on this region, but on the cortex.

In encephalitis lethargica he thought the outstanding psychological disturbance was what had been referred to as lethargy. Lethargy brought one directly into relation with the psychology of the drowsy or sleepy state. The condition which the profession had now had experience of was not the one which had been elucidated from the psychological standpoint. It had been difficult for him, the speaker, to obtain the results of any investigations which had been directed to the elucidation of what happened when a person felt drowsy, *æ.*, what occurred in regard to his mental function. It was known that the attention slackened when one became drowsy, and there was a depression at intervals in the attentive level; and during the falling to sleep, the peaks of attention between the states of depressed attention became less and less frequent, until gradually actual sleep supervened. At the same time the directive association of logical thought, which was characteristic of the wakeful state, gave place to freer and freer associations. The mind lost direction, and as one fell to sleep, the thought became freer and freer in its associations until, presumably, when one was asleep, what thought remained, as in dreams, was at the level of the free association of thought, where one thought was connected with another, not by directive attention, but by the intrinsic value of the thoughts themselves, their meaning or significance. If one looked at the sequelæ of encephalitis lethargica as indications of defective attentive level arising from the state of lethargy, one could explain many of the symptoms which appeared in the final stages. The loss of the higher social adaptation of the individual became more clear when one regarded it as a defective power of what was spoken of as attention—the inability to give the mind to those calls which came upon it from the social life. This change did not necessarily occur in all forms of toxic mental states. And though other toxic states, such as general paralysis, might lead to similar symptoms, the symptoms there did not necessarily arise through the action of the same psychological mechanism. In general paralysis, dementia in some degree was probably present from a very early stage, such dementia as was not at all apparent in encephalitis cases.

Sir Frederick Mott's suggestion as to the origin of the lethargic state implied not merely a dissociation of the normal tonic innervation of the body, but also an alteration in the metabolism of the body, which presumably induced, or was associated with, the psychological state of lethargy. If one admitted those two possibilities, and that the metabolic centres were situated in the region of the mid-brain, upon which the great weight of the infection in encephalitis lethargica fell, it was not necessary to hypothesize a sleep centre, as had been done.

He, the speaker, wished to emphasize the observation that the mind split in different manners under the influence of different toxic states. Dementia præcox, for example, was essentially a splitting of the mental life. It was not remarkable when one considered it that some cases of encephalitis lethargica, when they were very severe, resembled to a considerable extent or conveyed the impression that they were very similar to dementia præcox. Both were examples of mental splitting, and in encephalitis the splitting was somewhat different, in that the intellectual functions were not so greatly lost.

He also wished to refer to one or two smaller matters. The first was the question of tics: sniffing and coughing and sneezing, and especially the respiratory disorder which was such a common sequel of encephalitis. He would only put forward one view, which had not been mentioned, namely, that these tics were often associated with abnormal sensations. One of his patients complained of a constant discomfort in the nose and throat, and that was not at all an uncommon complaint. The discomfort seemed to be due to centrally determined abnormal sensations. One intelligent patient said to him she felt that if she could sneeze or blow her nose properly she would be better. It showed what distress was felt by these patients. In some there was an abnormal sensation of pain; in the disease a chronic pain was common.

The question of prognosis was a very important one, and he would like to hear whether Dr. Auden had seen any cases, other than the one he mentioned, in which any very marked improvement had taken place as a result of treatment. Many of the physical disturbances following encephalitis tended to improve with the passage of time, and in one or two patients he, the speaker, had seen an improvement in the mental condition. But on the whole these cases did not seem to do very well, though it was early days as yet to speak of what might ultimately occur.

One last point. In encephalitis one was faced with a problem which was urgent and, *i.e.*, oft-recurring, namely, What was one to do with the patients who were very difficult to manage, and yet who were not certifiably insane? Fortunately Lord Knutsford had been interested and had raised the matter in the House of Lords. The action had led the authorities to make an attempt to arrange for some form of institutional treatment of these cases. The ordinary industrial school found them too difficult to manage; these patients required special consideration, and in a school this special attention was a cause of disaffection among the others. One could not deal with them under the Lunacy Acts, nor under the Mental Deficiency Act. And though it was conceded that these children would do best in institutions, there were no existing institutions suitable to which the majority of such cases could be sent.

Dr. G. H. MELSON asked whether it was the experience of members that sometimes the symptoms, and perhaps also the signs, of this condition were very transient. He remembered hurrying to see a case which was diagnosed as encephalitis lethargica, but he was unable to corroborate the history which had been given. It was important to know whether cases, transient in onset, might yet lead to the sequelæ which were under discussion.

Dr. HAMILTON C. MARR wished to glean expressions of opinion from members concerning a particular case.

A few weeks ago he received a telegraphic message from an institution for mental defectives, stating that a boy there was unmanageable, and had the signs of post-encephalitic insanity. He was 9 years of age, and had escaped from an institution and wandered about until he got into the hands of the police. The superintendent of the institution asked the police to keep him in the police station and bring him back on the next day. But at 2 o'clock the next morning a message came stating that they could not keep him there any longer, and that they were bringing back the boy in charge of four policemen! The speaker went to see the boy, but he had then again escaped from the institution. He had knocked down the nurse in charge and had made his way out to a station and had thrown himself in front of a train which was about to start. When he was caught by the railway people he made another attempt and got on to the line in front of a moving train.

Dr. Marr saw him and found he was quite intelligent, and during his impulsive attacks, which were epileptoid, there was no loss of consciousness. But the question arose as to what could be done for cases of that sort. He thought it would be a great misfortune if such a case were sent to an asylum. But it was impossible to have such a case in an institution for defectives, not only because of his conduct, but these institutions had not the means for studying this obscure and toxic condition. He had suggested in a report that it might be desirable to do as had been done in cases of enteric carriers—to have them, if possible, associated in centres. The centre he had in mind was one like Stobbhill, in Glasgow, where a ward might be set apart for cases of encephalitis sequelæ, equipped and staffed by nurses who were qualified to deal with mental conditions. The cases could be under the care of people who could pursue clinical investigations and find out something more about the causation of the disease.

Dr. F. R. P. TAYLOR said he had been very interested in the remarks of Dr. Marr as to provision for these cases. Last week he was asked to see a patient who was supposed to have had meningitis two years ago. This patient was a girl, *æt.* 8, one of a family of nine, of which she was the youngest but one. The mother gave a history almost exactly similar to that related by Dr. Auden. The child had become morally bad; she was noisy, destructive, spiteful, and was unable to sleep. She also had spasm of one sterno-mastoid, and apparently a clonus of the right foot. The spasm could be controlled. She could not be detained in the house, it was merely a cottage, and the case could not be certified under the Mental Deficiency Act, because the condition was not present at an early age, and it was not considered desirable to have her certified and sent to a mental hospital. He could only suggest she should be got into a school for backward children, but the medical officer of health was not anxious that this should be done. He eventually decided to try to get her into an industrial institution or school. It was very important to the parents that these children should be taken care of, because they were a pest in the house, and at present there was no institution which had accommodation for this class of case. It was most

desirable that these children should be under medical care while they remained abnormal. He would like to hear whether Dr. Auden thought it desirable that the education of these children should be continued; whether they should be treated as backward children and educated accordingly, or whether for the time being all education of them should cease.

Lt.-Col. J. R. LORD said many interesting points had emerged from this discussion, apart from the value of the paper, which was one of the most interesting he had heard for some time. That cases of the condition had been sent to mental hospitals he believed to be a fact; if one went round a mental hospital with the possibility in mind, not a few instances would be found. As regards their accommodation and treatment, as far as the London County mental hospitals were concerned, they were segregated in West Park, and some of them the speaker had seen. The younger cases had showed immense improvement while under care there. Particular attention was given to their physical health, especially as regards any possible toxæmias. A case he showed at the Maudsley, a patient at Horton Mental Hospital, was very interesting. About 3½ years before she came to Horton she had an attack of (?) pneumonia, which was so diagnosed and treated by the local practitioner, and she recovered. About 2 years later she commenced to have attacks of screaming and periods of stupor, and repeatedly fell downstairs. After 18 months she became melancholic. Later it was noticed that she had very marked pyorrhœa, so marked that the doctors insisted on all her teeth being extracted, and this was done. The result, however, was the setting up of a further general infection, and she became more depressed and made repeated attempts to commit suicide, and when admitted was a fairly typical toxic-exhaustion case. She had, however, coarse tremors of head and hands, and especially of the neck muscles, some Rombergism, very exaggerated deep reflexes, poor superficial reflexes and some general anæsthesia of lower limbs. Pupils were normal. The infirmary she came from diagnosed her as suffering from disseminated sclerosis. Her condition, however, rather suggested paralysis agitans. He, the speaker, went sick, and did not see her for twelve months. When he returned he examined her with considerable interest. She sat immobile with her head on one side, and she was salivating at the rate of several pints a day. She had had several attacks of vertigo, "shivering fits," and apart from coarse tremors of head and arms (especially the right), all that could be found physically was a plastic condition of the right arm, extending up into the muscles of the neck on that side. Sensation everywhere seemed normal.

With regard to her mental state, she had nothing to say to anybody, and took no notice of food. When one moved her or lifted her head up from the chest she would talk sensibly and rationally in reply to questions, but her head would go down again immediately the stimulation ceased. There was undoubtedly lethargy and a plastic condition limited in one arm. He felt no doubt that the attack of so-called pneumonia was really encephalitic, and that it was the cause of the mental symptoms which followed, namely depressed emotional tone, extreme lethargy with occasional bouts of psycho-motor excitement and attempts at suicide. There was no intellectual disorder or impairment, nor had any such resulted. Nervous symptoms were undoubtedly basal in origin.

One interesting point in regard to that condition was, that according to its pathology it was difficult to explain the occurrence of delirium. Cases of encephalitis lethargica could be divided into the early delirious or psychotic group, with lethargy as a later symptom, and into cases which at an early stage showed lethargy and basal symptoms. Lesions in the brain-stem could not but affect the static sense, muscle tone and synergic control, etc., and he knew from his own experience of the illness that these led to a mental confusion and a loss of what one would call one's sense of personality, *i.e.*, the physical sense of personality. The failure to hold the head in a fixed position, owing to loss of voluntary control and of tone in the muscles of the neck, led to failure of the power of attention. He did not think one could possibly concentrate attention or make any mental effort whatever if there were complete paralysis or complete loss of tone in the muscles of the neck. The occurrence of delirium in basal lesions might be explained in the following way: There was the pathological condition of the mesencephalon, which might destroy to some extent the sense of physical personality, causing confusion, and there was the emotional disturbance owing to lesions affecting the thalamo-striato-rubral system, and loss of cortical inhibition. One could imagine,

under those conditions, delirium arising without toxæmia of the cortex. This would also explain the further interesting point that intellectual functions were preserved in encephalitis, while the more emotional and instinctive faculties suffered.

Dr. Marr had raised a point as to housing and care of these cases. He, the speaker, did not think that a case of encephalitis which was insane, i.e., exhibited marked disorders of conduct rendering it certifiable under the Lunacy Acts, should be considered in any different light from other toxic cases. He saw no reason for taking a condition due to one poison, and saying that the person who was the victim of it must be looked upon as someone above ordinary procedures. When in these cases there were such disorders of mind as led to abnormal conduct, their place was a mental hospital. If their conduct was not such as to render them certifiable and admissible to mental hospitals, then there were other places for treatment, such as the hospitals and infirmaries. Why should special institutions be built for such cases and not for other toxic cases? Though a good deal of work must yet be done as regards this condition, to-day all would agree that Dr. Auden had added in a great measure to whatever knowledge they previously possessed on the subject. He also felt much indebted for the important observations made by Dr. Cloake; and Sir Frederick Mott's fine demonstration of the pathological changes he had found had cleared the ground for the illuminating discussion which had followed.

Dr. HELEN BOYLE said that at the Lady Chichester Hospital there had been a certain number of mild post-encephalitic cases, and she had also had the chance of seeing several in consultation, having been called in to see them as they were supposed to have some mental disturbance. She asked whether members found that encephalitis in pregnancy ran a more beneficent and generally more satisfactory course than it did in other people. The only two or three cases occurring in pregnancy she had seen had been peculiarly satisfactory. These patients had gone to bed at once, and when they got ill they were not at first recognized as cases of encephalitis lethargica; the condition had been so benign that it had not interfered with the subsequent birth, and there had been no other sequelæ. She had seen several cases which had the Parkinsonian syndrome recover, and she thought Dr. Auden said they recovered too. She asked whether it was the experience of others that cases who had the Parkinsonian syndrome had not gone to bed at all as the nature of the condition was unrecognized, the diagnosis not having been made until subsequently. The case she specially wished to mention was taken ill at the General Post Office. She went home and she chiefly had lethargy, though her temperature also was raised, and there was some disturbance of vision. The nature of her condition was not recognized, and she was taken to the out-patient department of a hospital, where she was diagnosed as having a hysterical condition, and her father was told to send her back to work. This advice was followed, and two hours afterwards she was returned home, saying that it was impossible for her to work. She was taken to another London hospital, where it was said she was not hysterical, but was a case of dementia præcox, and that she had better resign her post at the General Post Office, as she would never recover, but would become insane and have to be certified. She resigned her post at the General Post Office and went home. Her people tried to get her to do various things, and were stimulating her to action the whole time. She became rather worse, and by the time she, Dr. Boyle, saw her, she had the Parkinsonian syndrome. She then went straight to bed and remained there three weeks, at the end of which time no one would have thought she could have had the Parkinsonian syndrome. It was the first chance she had been given of going to bed and keeping quiet. About four months after the onset she came to the Lady Chichester Hospital with post-encephalitic symptoms. She retained a certain amount of the condition for about five months, and at the end of that period she, the speaker, wrote to the General Post Office and told them it was encephalitis lethargica from which she had suffered, and that they might safely take her back again as she had recovered. The people in charge there said they must wait another three months, which they did, and the patient was now back again restored.

She thought that in the majority of cases where there were severe after-effects it was partially due to the fact that patients were not kept sufficiently long in bed at the beginning of their illness.

With regard to the differential diagnosis from dementia præcox, one of the

things which had struck her was that the dementia praecox of that type was not a "biddable person," whereas one could get an encephalitic person to do almost anything if one waited long enough. When demonstrating one case at a British Medical Association meeting, the patient, a woman, was induced to go to the top of a flight of stairs and slide down the banisters, and this she accomplished safely. Another point was the educability of the children. In many cases these children reacted very well to re-education. There was one very bad case, which seemed to be quite unducable; he had a lot of unpleasant tricks, such as spitting on his hands. But he eventually became a nice little boy and was able to go to an ordinary school.

Dr. R. W. GILMOUR commented on two cases of encephalitis which he had under care. One of them came into the hospital, was discharged, and three months later had diphtheria. Having recovered from that she came to the out-patient department again, and was found to have polypnoea, respirations 80 per minute, and he took her into hospital, and she had now been in many months. She was sent to him as a neurotic, with polypnoea. On the average her respiration-rate had been 80 to 90 per minute, but twice the rate had gone down to 18 to 20, though only for a few hours. At those times he had not seen her. She had had one mild attack of tetany, and there was a lack of rhythm between the respiratory muscles and the diaphragm. As she lay in bed one could notice a see-saw respiration; as the abdomen descended, the chest came up, and the two sets of muscles were acting in direct opposition. It was not due to paralysis of the diaphragm, as the bulging of the diaphragm was due to its active depression, and she was not getting sufficient oxygen at each respiration, and this polypnoea represented the effort to procure it. Attempts were being made to relax the diaphragm by massage, but so far there had been but little change.

The other case showed difficulty in diagnosis and the sensory condition referred to by Dr. Cloake. This patient was now 20 years of age, and she had the disease when she was 14, though her father and mother said that at school she was up to the average of the other scholars, and was of good intelligence for a girl of 14. Her present mental age, however, was not more than 10, and there had been a moral degradation coincidently with the intellectual backwardness; she was not now so truthful as formerly, and her ideas of *meum* and *tuum* had distinctly altered. She kept her head on her chest, and it was difficult to get her to raise it. She said that when her head was raised up she felt as if she was suffocating. It was easy to demonstrate to her that the posture did not suffocate her, and she replied that she knew she did not suffocate, but she felt as if she were going to. This was a very marked sensation, and it agreed with what Dr. Cloake said—that many attacks were due to the sensations which these patients had. It seemed to be a trouble chiefly on the sensory side. When she first came, her condition was diagnosed as post-encephalitic, but the history of her illness was most indefinite. When aged 14 she had an illness, when she seemed a little odd. Within the next year she showed she had some moral defects of conduct, and there was some mistiness of vision. The latter was allowed to go on for two years before she was taken to see an ophthalmic surgeon. Glasses were then provided for short-sightedness, and she wore them for a time. She had no diplopia. She said that things at a distance seemed misty to her. Her present symptoms made it practically certain that she had had the disease. In this respect the condition was something like poliomyelitis. In a case of the latter which he recollected there was a sudden paralysis of two fingers; she was practising at the piano one day, and then she noted this sudden loss of power in those fingers. Finally the condition was diagnosed as anterior poliomyelitis, affecting a few cells associated with the affected muscles. He did not see why in encephalitis the difficulty in diagnosis should not be due to the slowness of development of the lesion in the brain. Diagnosis was arrived at late in some cases because the original lesion had been so small.

A MEMBER asked if there was any neurological explanation of the great increase in salivation.

The PRESIDENT asked, in regard to relapses, whether the toxin remained in the system for a much longer time than was generally supposed. Also, having regard to the infectious nature of the disease, was there any possibility of it being prevented?

Dr. AUDEN, in reply, desired first to add his thanks to those expressed by others to Dr. Cloake for his amazingly interesting disquisition. It had been an eye-opener to him on the point which von Economo said must be the fundamental basis of consideration of this disease—the question of the sleep-wave rhythm.

The question of ultimate recovery had been raised. He felt, from his experience, that there was a definite tendency to recovery, even in cases which at first gave cause for a very grave outlook. The boy whose photograph he put on the screen, and who had to be re-taught to walk, was now able to do so. He was a wood-turner, and was getting on satisfactorily.

With regard to the moral changes, one found that so long as there was not a dys-social trend in the family, there was a tendency towards rehabilitation of the social instincts. In a paper he read before the Northern and Midland Division on April 27, 1922, he related the case of a boy who was charged with stealing. The parents were respectable, and they were rather severe on him. He was sent to a reformatory. A year ago boys in the school were taken to see the Wembley Exhibition, and he won a watch as a reward for the best essay. He was now out on license from the reformatory, and the probation officer brought the boy to see the speaker. He was then a well-conditioned boy, and there was no anti-social trend detectable in him. But if one got a case from a home in which there was a strong anti-social trend, and the children had lived in degradation and anti-social conditions all their lives, then, however long they were kept under a new régime, it was not likely that satisfactory cases would be made out of them.

With regard to institutional care, the difficulty was that these cases were on the increase; he had himself notes of 94 cases of children in the last year in the City in poor homes. Until there were some places where a mild discipline obtained and a lessened strain on the emotions, matters would go from bad to worse. He pitied any institution which received these cases only. The Mental Defectives Order, 1911, said that if they lacked supervision one might deal with them. There should be some institution in which the child's education could be continued. The most important thing of all was re-education in social discipline, which alone could make them suitable for a free life.

He had no explanation to offer as to the salivation some of these cases had, but the amount of saliva some of these patients secreted was amazing, as in Lt.-Col. Lord's case. The woman he quoted got rid of pints of it a day, and a towel had to be constantly kept under her mouth.

In one case he saw there appeared to be a definite relapse three years afterwards; there was at least a recrudescence of the physical symptoms, with an increase in her anti-social tendency, namely, taking what did not belong to her.

With regard to the possibility of preventing this disease, he did not think very much could be hoped for in this direction, because he did not doubt that the virus was passed on by means of carriers. He thought all that could be done in the way of prevention was to keep the nasal passages clear and in a healthy condition.

Of the adult cases of the disease who were notified last year, three had committed suicide in Birmingham, and that was a very important fact. That was 3 out of 282 known cases of all ages. In the Birmingham cases in the period 1920-23, the mortality among notified cases was 45 *per cent.*, while last year the mortality was 15 *per cent.* But these were fallacious figures, because more than one-third of the cases had never been recognized, and the cases now being reported were examples of those which had been missed in the past.

The PRESIDENT said he was sure he was expressing what was in the minds of those present when he tendered to Dr. Auden cordial thanks for this most excellent paper. He also thanked those who had taken part in the discussion.

WEDNESDAY AFTERNOON, JULY 8.

Wednesday afternoon was spent by members and their friends visiting those industries for which Birmingham is so famous. There were conducted parties to Messrs. Cadbury Bros.' factory at Bournville, the Birmingham Small Arms works at Small Heath, and Messrs. Dunlop's factory. Others visited the City Art Gallery and other places of interest and note in the city. Members were kindly and hospitably received everywhere.

ANNUAL DINNER.

The Annual Dinner of the Association took place at the Grand Hotel, Birmingham, on Wednesday evening, July 8.

The Chair was occupied by the President, Sir Frederick W. Mott, *K.B.E.*, *F.R.S.*

The guests included the Right Hon. the Lord Mayor of Birmingham (Alderman Percival Bower, *M.B.E.*, *J.P.*), Councillor Miss H. Bartleet, *O.B.E.*, *J.P.*, Councillor Miss Clara Martineau, Alderman J. H. Lloyd, *J.P.*, Alderman F. Smith, and others of the City and County Councils, and Mr. F. H. C. Wiltshire, Town Clerk.

The University was represented by Mr. W. F. Haslam, Dean of the Medical School, Prof. J. S. Haldane (Education), Prof. O. J. Kauffmann (Medicine), Prof. J. T. J. Morrison (Forensic Medicine), Prof. Sir John Robertson, *C.M.G.*, *O.B.E.* (Hygiene and Public Health), Prof. J. W. Russell (Medicine), Prof. E. W. Wall Carlier (Physiology), Prof. G. Haswell Wilson (Pathology), Prof. C. W. Valentine (Education).

Other guests were Mr. E. Musgrave Woodman (Surgeon, Birmingham General Hospital), Mr. C. J. Bond, *C.M.G.* (Ministry of Health), Sir James Curtis (Clerk to the Guardians), and the Rev. Father Emery.

Apologies for unavoidable absence were read from the Lord Bishop of Birmingham, the Rt. Hon. Neville Chamberlain, *M.P.*, Minister of Health, Sir Charles Hyde, Sir Gilbert Barling, Sir William Ashley, Sir Michael Lakin, Principal C. Grant Robertson, Alderman Lovsey, Alderman Cadbury, Mr. C. P. Lane and others. Dr. Edwin Goodall and Lt.-Col. W. R. Dawson sent special greetings and good wishes, which were read by the President.

The croupiers were Lt.-Col. J. R. Lord (President-Elect), Dr. J. G. Soutar, Dr. P. T. Hughes and Dr. T. C. Graves.

THE TOASTS.

"THE KING."

The PRESIDENT proposed the toast of "The King," with the words: May he long reign over us and be a bond of union of the far-flung British Empire!

The toast was loyally pledged.

"THE CITY OF BIRMINGHAM."

Dr. NATHAN RAW, *C.M.G.*, in proposing this toast, said he considered it a very great honour to have been asked to do so. It was a very important one, and he felt sure that no man, nor woman, could do full justice to such a toast in the few minutes he was supposed to occupy. They felt greatly honoured by the presence of the Lord Mayor of that great city. The Association had had a most enjoyable meeting, and members were grateful for all the courtesies and kindly hospitality which they had received from the citizens of Birmingham, a city which was famous throughout the world, for its enterprise, its initiative, and its commanding position in regard to industry and education. Whenever there was mention of the word "Birmingham" there rose to the mind the great name of Chamberlain. (Hear, hear.) He was not sufficiently old to remember the great Joseph Chamberlain, certainly the greatest Secretary of State for the Colonies the country had ever possessed; but he had had the great pleasure of sitting in the House of Commons with two other Chamberlains, worthy sons of their father, namely, Mr. Austen Chamberlain and Mr. Neville Chamberlain. Mr. Austen Chamberlain was a representative of this city, and had been not only Leader of the House, but also Chancellor of the Exchequer. Mr. Neville Chamberlain had also been Chancellor of the Exchequer, and was now—he said it advisedly—the best Minister of Health we had had for a long time. Mr. Neville Chamberlain had had the great advantage of being trained in the City of Birmingham and its municipal methods, and the speaker understood that he had been a successful Lord Mayor of the City. That training had been of incalculable benefit to him in his political career in the House of Commons, and he was sure that a good deal of the knowledge that gentleman possessed of State affairs was due to the experience and training he obtained in Birmingham. Birmingham was celebrated for many things, which it would be impossible for him to enumerate; and the name of the city caused one to think of its art, its music, and its great organizations

in regard to health and municipal affairs generally. There was present at this dinner its great health administrator, Sir John Robertson, whom he cordially congratulated on the high honour which had been conferred upon him in recognition of the splendid work he had done in furthering the health of this large community. He would only add that Birmingham was held in friendly rivalry by other large cities of the Empire. The work which had been done by the citizens and by the Corporation was a lesson and an example to other great municipalities. He coupled with the toast the names of the Lord Mayor and Councillor Miss H. Bartleet.

The Rt. Hon. the LORD MAYOR OF BIRMINGHAM (Alderman Percival Bower, *M.B.E., J.P.*), in responding to the toast, tendered to the President and the members of the Association his regrets that he had been unable to attend the ceremony in the morning when the Association laid a wreath in the Hall of Memory; he assured the company that nothing but business of a very urgent character prevented his acceptance of the very kind invitation which had been extended to him to participate in that thoughtful ceremony.

It had been his privilege on several occasions to be called upon to respond to a toast couched in somewhat similar terms to this during the past eight months. In fact, he thought he could claim to have served a very good apprenticeship, as, on looking through his engagements, he found that to-night was the 135th time he had been called upon in such a capacity. (Laughter.) Yet, notwithstanding that training, he found that to reply on the present occasion meant facing certain disadvantageous circumstances. On one particular occasion he was asked, "Did anyone see you come in?" and this evening he wondered whether this present company would let him go out, because it had been said by, he supposed, a puerile critic, that one of the tests of a person supposed to be insane was what view he took of those by whom he was surrounded; and he had heard it politely suggested that if such a one regarded everybody else as insane, the test was unfavourable to him. If that were to be the test, he could imagine that he and some of his colleagues on the City Council might find themselves labouring under very disadvantageous circumstances, because there were a number of people whom they might regard as mad, and there was a certain large volume of people who would put himself and his colleagues into that category.

The proposer of the toast had been good enough to refer to the vastness of the city's activities, and he, the speaker, only wished to say that while it was not for them to determine the standard of greatness to which the city might attain, one was mindful of the fact that the development of the city had naturally brought with it great problems for solution. In fact, he submitted that, historical as were the periods through which the city had passed, the problems which confronted not only it, but the nation, were such as to call for the exercise of sound judgment and wisdom. Members of this Association were interested in a problem which must inevitably react in the life of a city such as this, as it must also react in the life of a nation. And he was bound to confess that from time to time the thought arose with them as to how far the grave problem with which those gentlemen were concerned could be harnessed up, if not actively associated with those grave social problems which had now assumed such a menacing character in the country. It was very difficult to occupy the seat of judgment at all times, and it was extremely difficult to assess correctly the outlook of many of the thousands of men and women in this city who were labouring under such distressing housing conditions as applied here and in other parts of the country. It was also difficult to assess the mental outlook of the man and his dependents who for a long time had been attached to that great army of unemployed, which had been in existence altogether too long. He submitted that it must have its effect sooner or later, and very shortly they in this city would have to face the question of whether or not they were going to add to the already heavy burdens which they had been carrying now for some time, in the way of putting into operation further large unemployment relief work schemes. This problem was, to Birmingham, one of great gravity; they had already spent many millions of money in the direction he had indicated, and it was now necessary to weigh the pros and cons of the situation, and consider whether the already overburdened industries of the city should incur greater responsibilities in this direction. On the other hand, they had to put in the balance against that their obligations to those who, at the moment, found themselves unemployed, and whose position was getting progressively

worse. He assured the company that those who had accepted the responsibility for determining an issue of such importance would give it the consideration which it deserved.

He was sorry he would not be able to accompany the Association on the following day to Hollymoor, as he had to accompany the Town Clerk to Manchester immediately after lunch. He expressed the sincere hope that the reflections which the Association would have indulged in during the week would, in their working out, not only add credit to the great profession to which most of his friends present were attached, but would also work out to the advantage of their own and other cities, and, above all, to the advantage of those who were not privileged to enjoy what most of those others were happy to enjoy. He hoped that those now mentally afflicted, and those who in the future might be so afflicted, would be greatly benefited by research work, and so bring about a result which would also be a great credit to the medical profession. (Applause.)

Councillor Miss BARTLEET, *O.B.E.*, *J.P.*, also responded to the toast. She said that, in contrast to the Lord Mayor's 135th time of responding to such a toast, this was the first time she had done so. She very much welcomed the opportunity of doing so, as a woman. Perhaps one of the reasons she had been asked to do so was that she was really a little bit of old "Brum." Her father was a surgeon in the city, and both her grandfathers were physicians in the city, while her great-grandfather was a button-maker here, and perhaps that was why she had been called a "bright button." (Laughter.) She did not herself make anything, though she worked fairly hard. Yet, though she made nothing, except perhaps a few mistakes, she made no mistake in one thing she did three years ago, when she put all her weight—which was considerable (Laughter)—into getting the President, Sir Frederick Mott, to help in the research work which they had inaugurated in Birmingham, and to advise in the improvements being made in the mental hospitals of the city. Not the least part of the success of the pulling of that string was the assembly gathered at that function. Birmingham appreciated brains, and it had some of the best brains in the Kingdom present at this dinner to-night. But Birmingham also liked to pick the brains when it had them, and it was hoped that it would get a good many pickings out of this Conference. She hoped that all, or most of the members, would go out on the morrow to Rubery Hill and Hollymoor to see what was being done there, and what was intended to be done for the patients under care there. A good deal of building would be seen in progress, and it was hoped that new wards would have been ready in time for the visit. But at least members would be able to see what was attempted to be done for the unfortunate people who had to occupy such institutions. The admission rate had been considerably reduced, which meant that patients discharged recovered had really recovered in more instances than was formerly the case, and this fact of fewer readmissions was a very good test of the efficiency of the work. She hoped members would believe that they were very heartily welcome, and that the city was very grateful to them for their presence here. She was sure that presence meant not only that they would give help, but also that they would look on the city's failings with a little blindness, and be to the few virtues they possessed very kind. (Applause.)

"THE UNIVERSITY OF BIRMINGHAM."

Dr. C. HUBERT BOND, *C.B.E.*, proposed the toast of "The University of Birmingham." He said that the choice of place for the Association's Annual Meeting was guided, by happy custom, by where it transpired that the President's activities were concentrated, and from time to time it happened to be a University centre; that fact was always an asset, as it was felt that it helped the Association to keep its anchorage to general medicine. And even if, in the course of the business part of the programme, matters inevitably arose which were foreign to the spirit of an Academe, it broadened their outlook and prevented them getting into grooves which, from lack of ploughing and of fertilization by fresh thought, tended to become sterile. They were unteignedly glad to be in the Midlands capital, in what had rightly been called the emporium of our country's mechanical arts. Doubtless in one of the many Halls in the city they could have counted upon shelter for their meetings, but all the same it was not only a matter of great convenience to the members, but a greater satisfaction, to find themselves located within the

University. And those who at this meeting had been privileged to hear and see what this great educational centre had done and had in contemplation, and of coming into contact with the members of her professorial staff, had received stimulation and encouragement to press forward with the work of their specialty. He had received instructions on no account to forget to tender to Sir Gilbert Barling, as Vice-Chancellor, and to the Council and Senate of the University, the Association's most grateful thanks for the use of the fine rooms which had been placed at their disposal, and for the delightful hospitality shown to the members on the previous evening.

Birmingham was not quite the most junior of our universities, but was proud of being one of the younger ones; and not in arrogance, but with youth's virility and enthusiasm, the footprints of her progress indicated the firm and steady steps born of confidence in the cause she stood for. Her youth? That was a term of comparison—or nowadays, he should say, of relativity. This University was now a quarter of a century old, and just a hundred years ago joint systematic lectures on medicine were started here by Dr. Sands-Cox, F.R.S., who also, he believed, founded, in 1828, the College and Hospital known as Queen's, and it only took a quarter of a century since this College developed into a university. It was with an assured confidence that he asked what would be the position and influence of this University when she celebrated her centenary, or even her jubilee?

There were other toasts to come, and therefore he would not say all he had intended. But, among other points, one could not help noticing the order of the University's Faculties. Science headed the list, and was followed by Arts and Medicine, to which had been added not merely a Degree in Commerce, but a Faculty of Commerce. Did not this last addition exemplify the fact that commerce was still, as it ever had been, the most potent broadcaster of ideas? One could enlarge upon the growing importance of dental surgery, and members of the Medico-Psychological Association knew full well the influence of dental and other forms of sepsis. But of still closer interest to the Association, and to his colleagues on the Board of Control, was the Joint Board of Research in Mental Diseases, which was the first of its kind in the country, and in the work of which the President and their fellow members, Dr. Graves, Dr. Percy Hughes and Dr. Roscrow, were taking so active a part, and towards the work of which Sir Charles Hyde had given a substantial endowment. Within quite easy access of Birmingham were a considerable number of other mental hospitals and institutions for mental defectives, and therefore might he not venture to hope that at no distant date there would develop within the University a School of Psychiatry, and that the University would institute a Diploma in Psychological Medicine. He felt sure that that would have a full response from those in the vicinity, and that such a step would not be regretted.

He coupled with the toast two names known well in this room—Prof. Kauffmann and Prof. Sir John Robertson. In regard to Prof. Kauffmann, members knew the important chair that he held, that of Medicine, which was the crown and keystone in the ever-extending arch of the medical curriculum. And might not the eminence and distinction which he brought to this position be possibly due to that sure foundation which he laid when he was Professor of Pathology? The other name was Sir John Robertson, Professor of Public Health and Medical Officer of Health in this mighty city. What an onerous position to hold! Onerous, too, in the legal as well as the ordinary sense; for in Scots Law the word expresses the bilateral nature of an advantage, and it was patent, from a study of the City's vital statistics and noting its low mortality and the small incidence of infective disorders, that Sir John had won the trust of the citizens and an obedient response to his advice and instructions. He (the speaker) cherished an aspiration there will be corresponding posts known as Medical Officer of Mental Health. He took this opportunity of congratulating Sir John on the high honour which had recently been conferred upon him.

The toast was cordially given.

Prof. O. J. KAUFFMANN thanked Dr. Bond and the company, in the name of the University, for the manner in which this toast had been proposed and received. He could assure the gathering that it had given the Council and the Senate the greatest possible pleasure to welcome the Association in Birmingham. They found, even in a young university, that teaching was not the only business to which

they had to attend ; that one of its chief duties was to help, in every way it could, learning and research, whether it were within its walls, or outside them. For that reason it was most happy to welcome such a scientific body as this Association. There was a kind of research for which all had the greatest respect—that pursued by the individual without any institutional encouragement, a solitary worker just using the opportunities he had, making what experiments he could, and drawing such conclusions as his intellect enabled him to do, and then bringing his results before the scientific world, chiefly represented by societies of which this Association was a type. He met there with approbation, or—more useful still—with criticism, for nothing was quite so wholesome to him as criticism; and he could expect to get more criticism at a meeting of such a body than he could expect if his contribution were published in the *Lancet* or the *British Medical Journal*. Such criticism cleared his mind and enlarged his horizon for future steps in research, and corrected any tendency he might have towards excessive self-esteem on account of a piece of research, or on account of any exaggerated belief in its results. He himself belonged to a parallel society, the Association of Physicians. If all respected and valued this kind of research—and the researches of Lister were of this kind, it was no exaggeration to say, had conferred the greatest benefit on mankind—it was also recognized that there were other ways in which a University could readily help the solitary worker who, perhaps, had not the means of pursuing the aims to which his genius and his inclinations impelled him, and, recognizing this, the University was, at the time of which Miss Bartleet spoke, most eager to share in the undertaking of which Sir Frederick Mott was now the chief, and to which he, the speaker, wished every success.

It might not be known to all present—if it had been, he thought it would have been spoken of before—that in Birmingham University there was a Research Committee, the chairman of which was the Principal, and that committee existed for the express purpose of fostering any kind of research the plan of which was brought before it by a member of the staff. The committee examined the plan and then helped, by money or by instruments, or by placing space and time at the disposal of the individual, granting him some liberty from his teaching duties. In that way a most fruitful arrangement had sprung up, and members of the University staff had been able, on many occasions, to undertake and bring to a successful issue valuable researches. In addition, the University was contemplating the establishment of a kind of university press. They would not have a press of their own, but would undertake, in association with a well-known printing firm, the publishing of any major work which might have originated within the University, so that the record of such work might pass into the scientific world with the sanction and approval of the University. In that he saw a great stimulus to success.

Dr. Bond had made sympathetic reference to the University's youth; he represented it in glowing terms. He sometimes wished he was himself twenty-five, and probably a good many others did too. At twenty-five one had a reputation to make, and that was a stimulating thought. When a university was 100 years old it had a reputation to keep, and that was at once less interesting and less stimulating; yet it was none the less important, for without continuing its efforts in all directions he supposed a university would lose its reputation, just as baking powder would. (Laughter.)

With regard to Dr. Bond's remarks concerning the establishment of a School of Psychiatry, that would come. (Hear, hear.) But these things cost money, and he believed the University had not too much of that at the moment, any more than had the city.

In conclusion he wished to say a word about two men, about whom no one who rose to respond for the University should be silent. He referred to the two Principals it had been the good fortune of the University to have had since its inception. Sir Oliver Lodge shed the lustre of his name upon the young plant, and enabled it to grow in a way which, without such help, would have been impossible. In the present Principal, Grant Robertson, they had an accomplished historian, one who united with those functions a really remarkable interest in and understanding for the progress of all the physical and natural sciences, and was, at the same time, an extraordinary administrator. To both those men the advance which the University had made was due in great measure, and to them a great debt was due.

A word about himself: simply that in his references Dr. Bond had been far too good to him. (Applause.)

Prof. Sir JOHN ROBERTSON, C.M.G., also responded. He said he supposed his name had been associated with this toast because it was his function in life to try and think out means of preventing illnesses of all kinds. And one of the forms of illness which troubled the community were those mental illnesses with which many of those present had to deal. It seemed to him to be a peculiarly happy idea to propose this toast on this occasion, because a university not only had the opportunity of teaching the young members of the profession how to deal with those illnesses when they occurred, but also an equally important function of a university was to undertake research work in connection with their treatment and their prevention. Most of those present at this gathering would regret that the Vice-Chancellor of the University was not present to respond to this toast, as he had taken such an interest in the establishment in connection with the University of research work in mental diseases; indeed, but for him this organization probably would not have matured. All in the University were prepared to do their best to forward that research, and when the opportunity arose he knew it was the intention to do a great deal more than was being done at the present moment. It had been stated this evening that Birmingham University was a very young one. One rejoiced that it was a growing University, and he rejoiced even more that the people of the district were beginning to realize the importance of a University in their midst; and, more and more, they were sending their sons to the University for higher education. He could not help thinking that this would be an extraordinarily valuable asset to the district in time; he believed these new universities were going to change the whole mental outlook of the country in course of time. He was almost going to say we could not have too many; the only limitation was the financial one. Their own work at the present time was largely limited by the amount of income they got. They could do many things, and by starting them they could get the rising generation greatly benefited if they had the means. Birmingham, like all the other young universities, needed a very considerable endowment in order to carry on its work.

In conclusion he assured the Association that those in the University had made up their minds not only to teach as well as they knew how, but to engage in that equally important function, that of finding out new methods of curing disease and of preventing disease. (Applause.)

"THE VISITORS."

Dr. J. G. SOUTAR said the toast he had the privilege and the pleasure of proposing was one which was always welcome at any meeting of the Medico-Psychological Association, namely, that of "The Visitors." That term did not mean, on this occasion, that limited and restricted class of visitors defined in that Statute with which they were more or less familiar. (Laughter.) It meant the friends who had honoured the Association by their presence, and who had already added so much by their geniality and sociability to the enjoyment, and had indicated by their presence their sympathy with and their determination to support the purposes of the Association. Those cardinal purposes were the cure, where possible, and the relief—always to some degree attainable—of those who were suffering from mental disorder. But, beyond that, there was the spreading of knowledge and the provision of the conditions which had already been referred to by several speakers, under which it was possible to treat individuals in the first and early stages of mental instability, and thereby very often it would be possible to avoid the catastrophe of a complete breakdown. And, beyond that even, there was the cultivation of ideas in regard to the upbringing of children, the education of youth, and the conditions under which men and women should live and labour—conditions which would tend to the strengthening of the mental attitude of the whole of the nation. (Hear, hear.) How was such a desirable end to be effected? Only by combination of those who were capable, by experience and education, of carrying out research into the normal and the abnormal mental states and of those who occupied such positions in the State and city that they could influence the public policy so that the conditions necessary for carrying on that research might prevail; and when the results of such research had been ascertained, provision should be

made for carrying them into practical effect. (Applause.) There were present this evening citizens of Birmingham who in both the directions he had indicated had shown their sympathy and interest, and he trusted that what Birmingham did to-day, the rest of England would do to-morrow. Sir Gilbert Barling said, the other night, that psychology was beginning to find its own. He, the speaker, thought and hoped that was true. Not very long ago the vast majority of men and women in every degree of education looked upon psychology as being something absolutely remote from their lives, and, if they thought about it at all, they thought it was one of those subjects which a certain number of cranks indulged in and had futile disputations about, and who were only a little less cranky than those for whom they had to care. But the whole position was now altered, because it was evident that psychology was recognized as an important factor in the education of the whole of the people; that, in fact, it was in touch with every human activity, and that the practical application of the lessons which psychology could teach would be of inestimable value in improving the whole tone of the country. There was evidence of this in the fact that our great newspapers, presided over by men who had an extraordinary gift for sensing the undercurrent of thought, the still unexpressed feeling of the people, had given more prominence to matters relating to the cultivation and maintenance of mental health. It was also found in another way which was very satisfactory: a much larger number of men and women of the laity were coming in to help, and it was a matter which was sincerely welcomed that women in particular were coming to take their share in this important work. The company had heard this evening from Miss Bartleet of the work which she and others were doing, and he was sure that the more women could be got to be interested in this work, the more satisfactorily the work would be done; in fact what was required was the co-operation of the whole community.

He had to couple with the toast the names of Alderman Lloyd and Mr. Wiltshire. He was very sorry that Alderman Cadbury could not be present.

The toast was cordially pledged.

Alderman J. H. LLOYD, in responding, expressed the pleasure it had given him to be present at the Dinner, and to hear something of the Association's work. He had seen some of the work which was being done at Hollymoor, and it was a pleasure to do any slight thing in his power by his sympathy to help forward such a work. He could not, however, pretend to possess any great knowledge of the subject on which those present were experts, but while he had been sitting in his place, one thought had occurred to him. In Birmingham they had a motto, namely, "Forward!" and he believed they had always had the gift of being able to assimilate people who came among them from a distance. Miss Bartleet and he were both Birmingham born, but that could not be said of some of the speakers to-night, nor of many distinguished people in Birmingham; and it was rather a proud thing to be able to say that Birmingham had been able to welcome so many people from other places, to get the best from them, and obtain their loyal help and support to every good object which the city was able to take part in. As he saw around him so many representative people—the Lord Mayor, Miss Bartleet, the Medical Officer of Health, a representative of the Board of Guardians, of the University, of the Queen's and other hospitals—it occurred to him there was one great problem, one which no doubt arose in many other parts of the country too, namely, how the hospitals could be used to the greatest advantage of the neighbourhood. In this vicinity there were hospitals of great variety in addition to the numerous Corporation hospitals—hospitals run by the Guardians, good voluntary hospitals, children's hospitals and special hospitals. But what were they going to do in the future, looking twenty or thirty years ahead? The voluntary hospitals were finding it very difficult to raise sufficient money for the modern equipments which were necessary. Would someone with a gift for organizing come forward in the future and arrange some way in which the various hospitals could combine to the greatest advantage? Probably it meant securing a big piece of land somewhere—and it should not be far from the University, probably at Edgbaston, and he hoped the time would come when many more acres would be added to that property. Under some such scheme not only would overlapping and competition be avoided, but everything would be arranged and organized for the most efficient use of these hospitals. Accidents should be provided for in a central place, but for ordinary treatments the

situation should be such as to secure an abundance of fresh air. Moreover, the University should have the best circumstances and opportunities for teaching its pupils. At present there seemed to be difficulties in that respect owing to the isolation of cases of different diseases in different institutions. He felt he would like to take the opportunity of ventilating this idea in the present appropriate company. It might be a problem in other parts than Birmingham, but it was certainly an important one here.

He expressed his sincere thanks for the opportunity to be present, and he hoped the Association's stay in Birmingham would prove an enjoyable and profitable one. (Applause.)

Mr. F. H. C. WILTSHIRE (Town Clerk of Birmingham) also responded. He said he felt he was entitled to the indulgence and perhaps also the sympathy of the company in rising to respond to this toast, as the request reached him only on the previous day, towards the end of a protracted Council meeting, when his mentality was not very alert, and he thought acceptance was the best way out. Then he saw that his name was not included in the list of speakers, and he allowed his thoughts to evaporate, only to find that at the last moment he was required to speak after all.

He felt some trepidation in coming into such an assembly, because anything to do with psychiatry conjured up in his mind all sorts of dangerous things, but he was glad to say that he had thoroughly enjoyed the hospitality offered, and it was a privilege to be associated with so many gentlemen eminent in a great profession. At the same time, it was a pleasure tinged with regret that there should be need for such a body of eminent men in this country. He, in a small way, had, perhaps, remarkable opportunities of studying the mental alertness of 120 citizens of Birmingham—(Laughter)—a remark he made with trepidation knowing he was in the presence of distinguished members of that body. He was sure there was a general feeling of appreciation and satisfaction at the distinction conferred on Birmingham by the Association having chosen their city for its meeting. The only regret he had was that the Association had included in its numbers one he would have liked to remain at the Ministry of Health, Sir Frederick Willis, who was now President of the Board of Control. He supposed that the cultivation of a proper mentality among the rest of the nation had greater attractions for him. (Applause.)

"THE MEDICO-PSYCHOLOGICAL ASSOCIATION."

Mr. C. J. BOND, C.M.G., said it was a very great privilege to propose the toast of the Medico-Psychological Association of this country, and to couple with it the name of his old friend, Sir Frederick Mott. It might be thought somewhat presumptuous on the part of one who primarily and ordinarily was a surgeon, but who in later days had been led along lines of pathology and physiology into research problems, to propose the toast of such an august body as the Association he had named. But there were certain reasons which seemed to be bringing the various branches of the medical profession into closer co-operation. And when he remembered that the subject, which it was the privilege of members of the Association to investigate, the neurology and mentality of the human being, was at the bottom of many of the beginnings of departures from health, and when he also recalled to himself the fact that, after all, surgery was only a makeshift and dealt with the end-products of disease, he did feel a certain amount of satisfaction in being associated with the early beginnings of disease—even if only for a short time. He thought there was no doubt that recent experience, especially the sad experience of the war, had demonstrated very clearly that these neural and psychical problems were often really at the root of the early beginnings of morbid processes. It was also evident, from other reasons, that it was along the lines of research into these early stages that the co-operation of neurologist and psychiatrist with the surgeon and physician was of such great benefit. A few months ago, in a conference with Sir George Newman, and in a deputation to Mr. Neville Chamberlain, they had to discuss the question to which Alderman Lloyd had alluded, the vital problem of co-ordinating the medical services of the country, and he then expressed the opinion that the medical profession was surely, if slowly, beginning to realize the essential unity of bodily and mental conditions, and, he would add, the moral health of the community.

It was only as the profession realized the essential and intimate association between these bodily, mental, and moral processes that any real advance would be made in the conduct of the people. It was also being realized that owing to the increasing complexity of our modern civilization, national welfare was becoming more and more a question of the conduct of the individual citizen. It was because this Association dealt with conduct on the psychological side that its work seemed bound to increase. The social evolution of the future would be along psychological lines, and the community would have to rely more and more on the psychical and the neurologist to keep it on sound and safe lines in the developments which awaited any community in the future. The vital necessity for research into the problems of mind in regard to the future of the human race was now abundantly clear.

Those were the reasons which induced him to take his courage in both hands, and accede to the kind invitation which was extended to him to propose this toast. But there was an additional reason, one of a more personal character. His mind went back some fifty years, to the time when Sir Frederick Mott and he entered University College, London, and when they sat at the feet of that great man, Dr. Henry Maudsley. He recalled, with the utmost pleasure, the day when they both had tea together with Dr. Maudsley in his declining years at Denmark Hill, when they talked about the incipient stages of the foundation of the Maudsley Hospital. He, the speaker, was proud also to bear testimony to the position Sir Frederick Mott held among the neurologists of the world. (Applause.) This was not the occasion for entering in detail into his classical researches on the relationship of syphilis to general paralysis of the insane, the problems of dementia præcox, and into the intimate association between the internal secretions of the body and neural disorders, but when the history of neurology came to be written, Sir Frederick Mott's name would appear on many pages. (Applause.) Instead of sitting quietly at home in his later years, Sir Frederick had launched forward into a new departure, and he thought Birmingham and the Midland area owed him a debt of gratitude for the energy, the vision and the wisdom and the organizing capacity which he was putting into this scheme of research into the most vital question which could affect mankind, namely, psychology and the psychological processes which underlay all the mental manifestations. He congratulated Sir Frederick on being President of this great Association, and at the same time congratulated the Association on the honour it had done itself in electing him as its President.

Sir FREDERICK MOTT, in acknowledging the toast, said he felt somewhat embarrassed after the speech of his old friend, Mr. Bond, who was a great surgeon, a great scientist, and one who for many years had devoted himself to the social welfare of the people. He was respected by all who knew him. Mr. Bond was one of the most brilliant students there had ever been at University College, and to have him present on this occasion the Association regarded as an honour. When Councillor Miss Bartleet spoke of being the "bright button," she probably was not aware that a bright button was used for the purpose of hypnotizing people, and she had effectually hypnotized him, the speaker, in his old age, to come down here, and when he, the speaker, had orders from home not to carry on, Sir Gilbert Barling and the "Bright button" pleaded again, as a result of which he consented to take on work for a little longer. He had been looking into the book *Madrigals*, and there he saw an "Ode to the Doctor," which ran:

"The earth our failures hides,
The world our cures doth see,
What time and Nature does,
The world ascribes to me."

But that time had now gone by, because now the first duty of the medical man and of the State was to prevent disease, or, failing that, to cure it, or, failing even that, to prolong life and relieve suffering. In the past these great mental hospitals, as they were now called, employed what was described by a great doctor who lived 200 years ago. Time and Nature, for very little was done in the way of treatment. One could not treat disease until one knew its cause. A little while ago Sir Walter Fletcher alluded to the fact that Henry VIII, the Prince Consort and Mr. Lloyd George were the notable authorities who forwarded research, and he, Sir Frederick, would like to add Joseph Chamberlain, a distinguished citizen of Birmingham, who founded the schools of tropical medicine. He knew that

to be a fact, because he, Sir Frederick, was interested in tropical medicine, and Sir Patrick Manson, who was a pioneer, told him that if it had not been for Mr. Joseph Chamberlain, with his foresight, there would not have been carried out the researches of Manson, of Ross, of Bruce, of Castellani, of Leishmann and Rogers, which in great measure owed their possibility to the energy and foresight of that great Colonial Secretary.

The Research Board which had now been founded here he regarded as a very good move; it was a beginning, but it was not by any means all he wanted to see. He would never have come to Birmingham if he had not received assurance that that Board would be associated with the University, as he regarded such association as a great advantage. The sciences were now so extensive that no man could possibly keep abreast even of one science, and he would like to give a practical example of the value of being associated with the University. He had the idea of investigating the chemistry of the body, which was known as basal metabolism, in cases of mental disease, as compared with the condition in health. The desire was to place these patients under favourable conditions, putting them in a nice room, where they would not know they were being experimented on, and indeed it was not really in the nature of an experiment, because they would simply breathe the air, and there would be an estimation of the carbonic acid they exhaled and the amount of oxygen they used up. In the University there was a most distinguished scientist, Prof. Haldane, and to him the speaker applied, and he afforded him valuable information, he being the great authority on the subject, and he helped in the construction of the chamber which was now in use. Information was also wanted in regard to other matters—physics, chemistry, physiology, etc.—and application could always be made to the professors, knowing that they were able to afford the latest information on the subject. Therefore it was of inestimable advantage for a research laboratory to be associated with the University.

He was very pleased to hear the suggestion of Alderman Lloyd, because he thought the University of Birmingham ought to try and follow London; through the generosity of Dr. Maudsley, London was ahead of Birmingham in this respect. Dr. Maudsley came to him, the speaker, fifteen years ago, and then wrote a letter offering to give £30,000—which was half the fortune he had made himself—to the London County Council if they would build a hospital for the treatment of early cases of mental disease, with the view of preventing them going into the county asylums, because it was his belief that a number of cases could be arrested and cured if they were treated early. The great difficulty was to get patients at an early stage of their trouble, because they were afraid of being certified and sent to an asylum. It was a very real fear, though it had been much exaggerated by statements in the Press concerning the treatment meted out to patients in those institutions. As a matter of fact, the treatment there was most humane, but the fear remained. One could not blink the fact that during the war a great number of soldiers had this fear, and a War Office regulation was passed that no soldiers should be sent to asylums unless they were suffering from an incurable chronic disease, or had been observed for a year before being certified as insane. That also applied to the Ministry of Pensions. His experience at the Maudsley Hospital assured him that a number of cases could be treated voluntarily there, and if they got better they were discharged without the stigma of having to be certified. It was a fact that the British Medical Association and the Medico-Psychological Association of Great Britain and Ireland approved, before the Royal Commission on Lunacy, of the principle of not certifying a patient for 28 days, i.e., the Provisional Order should still continue for 28 days if it were necessary, and then the patient should have the opportunity of saying he would remain under voluntary control. That was a great advantage, and it would have to be provided for. How would it be done? Many propositions were made. One was that an attempt should be made to link up the general hospitals with the treatment of early cases so that these patients could go to the general hospitals and be treated there. But there were great difficulties about that. First, the voluntary hospitals had no money, yet special wards would be required, and even then, there were not facilities for treatment such as was required, namely, nice gardens and surroundings. He would probably be dead when it came about, but he could visualize Alderman Lloyd's scheme coming off, with a mental hospital near the University. We in this country were very slow. When Dr. Maudsley came to him, the speaker, and

offered the money, it was taken by the Council—they were wise in that way—and when Americans heard of this and they saw the picture of Dr. Maudsley in the papers, they sent their architect, who said Mr. Phipps would find the money for a psychiatric institute at the Johns Hopkins Hospital, Baltimore, and asked to see the plans of the Maudsley Hospital. But there were no plans, and there was no site for five years, and he did not think the hospital would have been secured then if they had not been stirred up. Maudsley lived until 1917, and he saw the hospital as a war hospital, but not as one for the treatment of acute mental cases for the civilian population. He was very glad Mr. Bond reminded him of the interview with Maudsley, as he was such a delight to talk to. He was not only a great alienist physician—the greatest we had produced, he thought, as all his works were translated into many languages—but he was a great philosopher too, and all the world now knew he was a great philanthropist. His wife was Miss Conolly, and it was Conolly who took the chains off the lunatics at Hanwell, and their association with the better treatment of mental conflict would remain for ever.

When he, Sir Frederick, gave evidence recently before the Royal Commission on Lunacy, its chairman, Mr. Macmillan, asked him what he, the speaker, would like to see done, and he replied that here was a great University, that of Birmingham, which was the centre of one of the most populous districts in Great Britain. Why could not that University have a hospital like the Maudsley? And if the people had to pay £5 a head for a few weeks, was not that better than paying £2 or £1 10s. for two or three years? In 1912 there were 10,000 patients in the London County Council hospitals who had been there for ten years, and 5,000 who had been there twenty years. What was wanted was to prevent many of these cases, and that could be done in many ways. It could be done by improving the social conditions of the people, especially in the matter of housing. He saw a case recently from the East End of London. The woman was not insane, but she was very troublesome, and she was sent to the infirmary. They could not certify her there, and she had to be sent back to her home, and she made that home intolerable. A large family occupied two rooms. What was to be done? By improving the housing of the people one could help to dispel the anxiety which was such a fruitful cause of sleeplessness, as it upset the whole chemistry of the body, and this reacted back on the mind. It would not affect the very stable mind, as was shown very well during the war. For example, there were 10,000 Serbian prisoners who were subjected to every stress and strain, and yet one of the most distinguished German alienists could only find five of them who were insane. They had gone through hardships and adversity so long that only those who had a stable mental and bodily constitution could have survived. He fully agreed with all Mr. Bond had said. It seemed to him, the speaker, that the great problem was that the more highly cultured a people were, the more plastic was the highest level of the brain, and therefore one was bound to get streaks of genius and streaks of insanity. It would often be found true that—

“Great wits are sure to madness near allied,

And thin partitions do their bounds divide.”

He had studied hundreds of pedigrees, and had found that mixed up with eccentricity and madness there was genius. It would be found that all the great people in history were either regarded as mad men or bad men. What was wanted was a large proportion of “ordinaries,” those who were willing to go on and keep up the conventions, social usages and customs, because that was the great flywheel of the whole mechanism; and there must also be this streak of imagination and genius. And there would be insanity with it, for circumstance and chance might be unfavourable to the development of genius, and a mental breakdown might be the sequel. The person who was not wanted, for whom the community had no use, was the mental defective. And in regard to the mental defective, the higher grades of this shortcoming were the more dangerous, because one could segregate those of lower grade. The higher grade was not only a danger, he was also fertile. Not everybody who was good at book-learning was a useful unit of society, and many defectives were useful with their hands. He once heard Dr. Macfie Campbell say, at Portsmouth, that many who could not pass the intelligence tests were useful with their hands, and were employed at automatic mechanisms in factories in America. Whether that was a right policy was another question.

Those present had heard of claustrophobia, or a fear of enclosed spaces; also of agoraphobia, or the fear of the streets and open places. And soon there would be a new fear current—the fear to cross the roads. Such roads as Hill Street, in this city, were for the “quick and the dead,” and if Prof. George Robertson had been at the Dinner, he would have asked him to give a prefix to this phobia, for it was a serious problem.

A further and very serious problem was that of syphilis. At one time this was not known or suspected to be the cause of general paralysis of the insane—a most terrible disease. It had been looked upon as an incurable disease, but since the Royal Commission on Venereal Disease sat it was known to be a preventable disease. And if preventable, why not prevented? It could be prevented by prophylaxis and by educating the people. It could also be prevented by very early treatment—very early because if the organisms got into the brain it was very difficult to get them out again. That disease had to be considered, not only from the standpoint of the individual, but also from that of the children and the innocent wives. Therefore the establishment of the treatment centres all over the country and educative measures would, he was sure, lead to a diminution of this terrible disease, which affected every organ and structure of the body.

And there was a new disease in our midst, encephalitis lethargica, and this morning a very valuable paper was read on it by Dr. Auden. That gentleman brought forward a number of cases in which children who had the disease became moral imbeciles, with a radical change of character. The cause of that disease was not known, but it was some infection which got into the brain. There could not be hope of a successful treatment of the disease until something was known of the causal organism. At present, like the cause of cancer, it was elusive. The hope for the future lay in research, and he was glad to hear Mr. Bond's reference to research, because he did not think it was sufficiently valued in this country. He was proud to think that Birmingham was one of the first cities to take up officially the research in connection with mental diseases. So far, he did not know that anybody had given anything with which to found a hospital for mental disease except Maudsley, though Sir Charles Hyde was kind enough to endow a Lectureship in Abnormal Psychology, and had given to the Research Board funds for a scholarship. He wished more interest were taken in it, and that this subject would no longer be, as the Chairman of the Commission spoke of it, the Cinderella of the medical profession.

He hoped he had not made his remarks too lengthy, and, in conclusion, he thanked all for the patience with which they had listened to him.

MORNING SESSION—THURSDAY, JULY 9.

At the University Buildings, Edmund Street, Birmingham.

The PRESIDENT in the Chair.

The PRESIDENT first made sympathetic reference to the illness of Dr. R. Worth, Hon. General Secretary, whose condition necessitated his return home on the previous afternoon.

PAPER.

Incidence of Chronic Sepsis in Mental Disease (with slides), by Dr. T. C. GRAVES (see p. 658).

The PRESIDENT, in thanking Dr. Graves for his very valuable paper, said it embodied a large amount of research work, and showed that sepsis of the kind described was an important contributory factor—Dr. Graves did not claim it was more than that—of the ill-health of people admitted to mental hospitals. He had shown clearly that by removing the causes of chronic sepsis, the general health of the individual could be improved to such an extent that he was thereby given a chance to recover; for, after all, the axiom *mens sana in corpore sano* still held good. Attention to these matters, in anybody, might mean much. He, the speaker, was very interested in this subject, and he had suggested to Dr. Graves that what ought to be done in the laboratory was the following: If these chronic infections of the sinuses such as had been thrown on the screen played a part in producing mental symptoms, one ought to be able to find the lymphatics along the olfactory and fifth nerves, carrying the poison to the brain.

the same as Orr and Rows had shown experimentally in the case of animals. Possibly the only evidence of it would be a degeneration of the nerve structures, but it was a line of research which was well worth considering.

Another point of great importance, as Dr. Graves pointed out, was that a combined sclerosis might arise from streptococcal infection, particularly of the intestine, in pernicious anæmia, for the reason that the hydrochloric acid no longer acted as a barrier to organisms passing into the intestine. He thought many of these cases would be found to have achlorhydria or hyperchlorhydria. Dr. Pickworth had carried out the elaborate researches on the bacteria with the greatest care.

He wished to refer especially to the case of fibrosis of the thyroid gland. He had examined that specimen and found it to be a complete fibrosis; he had not seen anything like it before, though he had examined 150 thyroid glands. Here there was no chronic lymphocyte infiltration. Therefore he did not think sepsis had anything to do with that case.

What effect had that on the dead fœtus? It was well known that the thyroid gland of a pregnant woman becomes enlarged, and for a specific purpose, namely, to provide the thyroxin necessary for the tissues of the growing fœtus. He thought the fœtus died in this case because it was not receiving thyroxin from its mother.

Another important matter was that the natural defence of the body against micro-organisms was not taken sufficient note of. He did a number of experiments on this question many years ago, and found that organisms were continually entering the body. The late Sir Victor Horsley and he, when they were students, took organs out of the bodies of animals and dropped them straight into boiling paraffin, and when the paraffin had set they put the pots containing the organs into the incubator, and they went bad and putrefied. It was concluded that organisms were always entering the body, and if the defences of the body were good, the organisms were destroyed as fast as they got in. Prof. Caird, of Edinburgh, sent him word that he had done the same experiments, using wild animals, and said that these did not show this infection; they were able to deal with the organisms as fast as they entered the body.

Another important matter was that he believed a chronic sepsis might drain the endocrine system in some way. Dr. Pickworth was now continuing some researches which he, the President, reported last year, as to whether these chronic infections did not use up the thyroxin of the thyroid gland and upset the balance of the endocrine system. Considerable evidence was now available that it did this, but it was difficult to estimate the thyroxin, and a good deal of research was required before definite statements could be made. His belief was that prolonged anxiety upset the whole endocrine system. All were intensely interested in Dr. Graves's researches, and trusted he would continue them, as he was on the right lines. He offered him his congratulations and asked members to discuss and criticize it; Dr. Graves valued criticisms more than he valued platitudes.

Dr. P. C. P. CLOAKE said mention had been made of pernicious anæmia, subacute combined degeneration, and the channels by which the central nervous system might be affected and receive infection, as suggested by Drs. Orr and Rows some years ago. At a meeting of the Royal Society of Medicine some months ago, the subject of the origin of subacute combined degeneration was discussed, and Dr. Stanley Barnes, of Birmingham, suggested the possibility that the infection of the central nervous system travelled *via* the perineural lymphatics, *i.e.*, from the infected duodenal area. That view was supported by the fact that the symptoms in subacute combined degeneration so often centred round the thoracic area of the spinal cord in the first instance. There was another possible line of infection, which had been stressed to-day, namely, from the sinuses of the nose, through the thin plates of bone lying between the sinuses and the orbit. Recent published work showed that this plate of bone had often vanished, so that nothing lay there to prevent spread to the orbit but a thin epithelial and membranous layer. Some work which was published by Behr a year or two ago suggested that disseminated sclerosis might also take origin in the first instance as an infection in the nasal sinuses; and that the virus gained entrance to the nervous system through the sheath of the optic nerve. One of the earliest symptoms in disseminated sclerosis was a defect of vision, which was associated with retro-bulbar neuritis. This symptom often preceded the generalized symptoms of the disease by many years, and it had been suggested that the

infection gained access to the optic nerve in the first instance *via* the plate of bone in the region mentioned.

Another observation, of which he asked for confirmation from any members, was the following: One often noted, from the histories given by patients, that in the days prior to the onset of an infection there was experienced a feeling of extraordinary well-being—one which was quite beyond the person's usual experience. This might be also correlated with the fact that during vaccine treatment for septic infections the immediate effect of the vaccine was, very often, an unusual sense of well-being. One patient noted regularly that after such a sense of euphoria there followed, a week after the injection, a period of marked depression. That particular patient was a doctor, and he related very fully to the speaker the feelings he experienced.

He asked whether Dr. Graves had used vaccines in the treatment of his cases of this kind, also, whether he could give figures showing the influence of treatment as compared with the condition of other cases in which focal septic areas had not been removed. There was recently published a paper describing the treatment of 200 cases admitted into hospital in America, in which alternate cases were treated, one by the removal of septic foci found, and the next case by other treatment. The figures given showed that there was no difference in the recovery-rate.

Lt.-Col. J. R. LORD reminded members that this subject was very well discussed at a meeting in London, when Dr. Cotton produced a paper; also at the Belfast meeting Dr. Hobbs submitted a paper detailing criticism of other American medical superintendents who had tried to do the same work as Dr. Cotton. Both papers had appeared in the *Journal of Mental Science*. The success of the treatment of mental disorders by the removal of septic foci depended entirely on the thoroughness with which the work was done. The removal of a few decayed teeth and a perfunctory search for other septic foci was valueless. Yet it was easy to imagine in such cases that all sources of sepsis had been taken away. In a mental hospital with limited opportunities for surgery and for bacteriological examination such work was likely to be unsuccessful, and he was not surprised at the results obtained in some mental hospitals. To all intents and purposes such comparisons were valueless. As medical officer of a large mental hospital he had the feeling that Dr. Cotton and Dr. Graves were on the right lines. Cases were put forward by medical officers for discharge on trial, whose report on them was to the effect that the cases were as well as they ever would be while in hospital, and that they had been in this state of partial recovery for some time, and that a change would probably do them good. His own experience in regard to most of those cases was, that if one examined their teeth and throats, one would find septic conditions. His practice was to defer discharge until these septic foci had been dealt with, and perhaps in six weeks' time such cases could be discharged recovered. He always declined to discharge a case, however well, until septic conditions, if it were practicable, had been removed.

He also noticed in regard to some relapsing cases, particularly in the climacterium, that on the last admission attention had been drawn to a septic condition of the mouth, which was dealt with, the teeth being removed, and perhaps the case treated with autogenous vaccine, and the patient again went out recovered. This time the case remained out. If cases were treated in this thorough fashion the first time they were admitted many relapses would be prevented.

He wished to add his tribute of admiration of Dr. Graves's work. He had been staying with Dr. Graves, and had had an opportunity of hearing from him at large on this subject, and of seeing the records of many successful cases which had impressed him, the speaker, very much, and the view he took was that no case of psychosis of a recoverable kind should be deemed to be chronic until the patient had been rendered free from septic foci and kept so for three years. For some time preparations had been in progress at Horton for team work of that kind, and he was very grateful for the opportunity of learning more of the subject, and he was looking forward to achieving good results in his own hospital.

Dr. BEDFORD PIERCE said that in listening to such papers as Dr. Cotton's and this of Dr. Graves, he had found himself wondering whether anyone had made inquiry concerning people with no mental disorder as to what was the state of their sinuses, their teeth, and their intestines. He believed that all those present, for instance, would be found to have these organisms present somewhere, and hence

there was a danger of unduly stressing a relationship of these septic foci to mental disorder.

Dr. J. G. SOUTAR remarked that what Dr. Bedford Pierce just said had induced him to rise. It was certain that one particular stress would affect one individual and not another. A certain number of persons readily became subject to a degree of mental instability if they had any septic focus at all. During the last five years, since he had had the opportunity of seeing cases at a very early stage of mental instability, he had been much struck by the fact that what appeared to be comparatively small stress from septic foci affected them seriously, and if they were not attended to at any early stage, the patient soon got into a state of ill-being. The patient then began to wonder why he had this feeling of ill-being, and certain misconceptions and misunderstandings arose, and so delusional conditions developed. There thus came in the psychic misinterpretation which gave a tone to the particular line in which the mental manifestation showed itself. A valuable paper like that just read enforced what was absolutely necessary—that in the case of anyone having a departure from mental health, it must be ascertained what departures there were from physical health. This must be the first duty of all who dealt with mental disorder. One found that cases arose in which there was no fault to be found with the physical health, but there were stresses of another sort, and subsequently there were found to be changes in the person's metabolism, which, in that case, were of course secondary to the primary psychic stresses. Still, in a large number of cases a physical stress, such as sepsis, was a starting-point of the disorder. He was constantly calling in colleagues to make an examination of a patient whom he could not examine thoroughly himself, and that pointed to the necessity of team-work in regard to these cases.

As to the association of enlarged tonsils in children, all sorts of troubles arose in this relation, and not long ago he had an instance of a child who was continually wetting the bed; it was also irritable and intractable; but in that case enucleation of the tonsils and removal of adenoids had converted him into a well-behaved boy both by day and night.

He wished to add his testimony as to the value of such a paper as this, especially to those engaged only in clinical work and who had not the skill, or at least lacked the opportunity, to pursue investigations in the way they had been pursued by Dr. Graves and Dr. Pickworth.

The PRESIDENT said that during the war he went to the Croydon Hospital, where Sir Frank Collier was treating the jaw cases, and he found he could not obtain good results until he got rid of all sepsis. That meant a good deal of extracting and fixing of the jaw, and these soldiers had to be fed on minced food. When he, the speaker, compared the health of these men so fed with the health of those in other wards who had not had their teeth attended to, he found a marked difference in favour of the former. The difference was noted, too, by three American officers who accompanied him.

Dr. GRAVES, in replying, thanked all who had spoken for the encouragement they had given him. He had attempted to deal with some of the matters which might explain the difficulties others had met with. What he particularly wished to impress with regard to the jaws was that there might be deep foci of infection, whence infection might spread elsewhere.

The President said he would like to trace the path of the poisons in the nerves to the head. He, Dr. Graves, thought the fifth was a most important nerve in this relation.

The President also referred to the case of fibrosis of the thyroid. He believed that thyroid had been subjected to X-rays for some time before the patient was admitted. The question in that case was as to the diagnosis—whether it was exophthalmic goitre pure and simple. According to McCarrison, exophthalmic goitre owned a basis of infection. As to how far the thyroid was responsible for the condition in that case was a question, but he bowed to Sir Frederick's view on the subject. It was the cause of the condition of the fœtus. He quoted that case chiefly to show that infection could go deeply into the bone, beyond the alveolar border, and could be covered over by the cheek and muco-periosteum, and then the septic focus could not be seen, except by X-rays.

The question which arose was as to which organism was answerable for these cases, whether it was a visible organism or an invisible virus; also as to whether a depressed vitality allowed organisms to become active.

He thanked Dr. Cloake for his remarks. With regard to the thin plate of bone between the sinuses and the brain, they found in a case of epilepsy a chronic sinusitis and adhesion of dura mater to that plate of bone, showing that irritating material must have gone through to produce that periostitis and those adhesions. Maudsley pointed out the variation in the emotional state which might precede the onset of acute infective disorders. The more one read Maudsley, the more one felt that he covered the whole ground.

With reference to vaccine treatment, Lewis Bruce, in his book—which was not as well known as it deserved to be—said his view was that vaccines were not likely to do good, and on the whole he, the speaker, was inclined to agree with him. Possibly these people were in a state of anaphylaxis; they had already a large dose of foreign proteins, and by giving vaccines one might be adding more. He thought the treatment should be of a non-specific variety, so as to endeavour to stimulate the tissues which had been poisoned. It must be realized that each case was an entity in itself; no two persons were alike in respect of their response to infections. It was probable that we each carried a type of organism different from that of our neighbour. Even if laboratory tests showed that the organisms were of the same kind, that carried by a person for some time had been acted upon by him, as well as acted upon him, and this probably modified its characters. In one case the organism had its virulence exalted, in another case depressed.

In reply to Dr. Bedford Pierce, there were healthy people who had similar infections, he agreed, but the difficulty was to know what harm a focus of infection was doing. In surgery it was recognized that toxic states could arise, and in these conditions one could do something, namely, raise the potential health of the person, and thereby give him a better chance. There was a potential health and an actual health; Sir William Willcox had stressed that. The point was as to what we might be if we did not carry a load of infection from birth as we did. A car would go very much better if one kept the rust out of it than if it were left out in the rain and the rust were allowed to accumulate. Perhaps the milk which the child received from its mother might be infected, and this and ensuing infections drained the body, and eventually intensified the emotional reaction of the individual. It could not be said why one person's neuronic durability was more than that of another, but it was a factor which could be taken into account.

He wished again to express his appreciation of the way in which his paper had been received, and to reiterate his cordial appreciation of the services which had been given him by his colleagues on both the visiting and the resident medical staff.

PAPER.

On Delinquency, by Dr. W. A. Potts (see p. 675).

THE PRESIDENT said this paper had been listened to by the members with great interest, for it had laid the subject before them in a very lucid and comprehensive manner.

Dr. R. W. BRANTHWAITE said he did not think he had ever listened to a paper which had given him greater pleasure and interest, but it was too comprehensive to discuss its points in any detail. He, the speaker, had had a very unusual experience of the subject, beginning probably in the wrong way, in that he began with a certain class of old case, which Dr. Potts called the habitual drunkard, or the habitual drinker, and he had ended up with the youngest case of exactly the same type. Dr. Potts did not believe in moral imbecility, but what else could he call it? After all, it was only a name given to describe or indicate a condition. Dr. Potts called it mental conflict. Taking at random 400 cases, some could be judged by their mental age, but the majority could not. Although they might be a degree or so below the normal, they were not sufficiently low to be classed as mentally defective without other conditions co-existing. Those conditions were asocial; there was a defect in the power of judgment, an imperfect control over the impulses, a dread of anything like monotony, and these things prevented a normal existence. Such persons were troublesome and violent; some were dangerous. If they were not moral imbeciles, what were they? They could not be certified as insane, and yet must be controlled. The ordinary institution for certified cases could not control them. Whatever name was given to them, that was the condition which had to be dealt with, and it was that condition which the promoters tried to describe, as well as they could, in the

Mental Deficiency Act, so as to convey an impression as to the kind of case referred to.

With regard to the alcoholic, he had had considerable experience of cases committed from courts, and seeing these young girls and young men at Rampton State Institution, his memory was that the cases he formerly dealt with which had been committed from courts as habitual drunkards were exactly of the same type. He would be interested to hear what name Dr. Potts proposed to substitute for moral imbecility.

Dr. A. M. McCUTCHEON said he had learned much from Dr. Potts's paper, and there were only two points he wished to comment on. Reference was made in the paper to the correction of physical disabilities. His, the speaker's, work was in connection with mental defectives, and he considered that too great attention could not be paid to the correction of any physical disability which was revealed by a thorough examination.

With regard to the moral imbecile, he had nearly 1,100 patients in his institution, and his experience was limited to those patients; but he had not any moral imbeciles, though he had plenty of wrong-doers. They were all dealt with as feeble-minded, but there might be other wrong-doers who did not present the same features as did his patients, and to whom the term "moral imbecile" was applicable.

Dr. HAMILTON C. MARR said that there was one case which had struck his imagination, the first case he saw with his former colleague Sir John Macpherson, and it was that of a man who had served nearly all his life in Peterhead convict prison, and there was a likelihood of his being discharged. The inhabitants of the district prepared a petition to have him examined, as he was such a dangerous character. It was the most profound case of delinquency which he, the speaker, had seen. The man confessed to having committed one murder, and probably two others, and also to many rapes of lone women on the road. The medical officer of the prison of that time refused to certify him, knowing he was a homo-sexualist. The man had seen visions of faces, and was certainly insane; but on going into his history it was found that from the age of fourteen he had committed all kinds of bestiality. During the time he was in prison, every two or three months he became very peculiar in his conduct and irritable, and had to work alone. Since having closely examined that case, he had concluded that there might be, in most of these cases of homo-sexuality, a condition of mental disease, and that the sexual symptoms in the intervals he had mentioned might bear the same relation to manic-depressive insanity or the adolescent insanities as did the impulsive outbreak, *i.e.*, the only symptom which revealed itself was homo-sexuality.

As regards the procedure adopted in the Birmingham courts of calling in expert medical advice in certain cases, he had been asked what should be done in connection with child assault cases, and he had suggested that in all cases of sexual assault it was desirable that a panel should be constituted of the medical men in the neighbouring asylums, or those who were particularly experienced in mental deficiency, to assist the magistrate or judge in coming to a decision. He hoped such a suggestion might be adopted throughout Scotland. It was a great advantage in large provincial towns to have special medical men attached to the courts, but it would be impossible in smaller places.

Dr. M. HAMBLIN SMITH said he was sorry that the time left for discussing this paper was so limited, as he had taken many notes. He would confine his attention, under the circumstances, to three points.

There was a certain amount of dissatisfaction felt by some of the magistrates because many of his, the speaker's, reports were said to be negative. They were negative in that they did not indicate any specific thing with which magistrates, in the present state of the law, could deal. One could not always say a person was either mentally defective or insane, and those were the only two conditions with which the courts could legally deal from the mental side. But there were many other conditions found with which the court should be able to deal, and what was required was a clinic for the examination of cases, and for their necessary treatment. If that were provided and a sufficient number of people to work it, he thought there would be some surprise at the results. Dr. Potts said he had no information as to the percentage of mental conflict cases among the offenders. So far as the limited investigations they had made were concerned, he felt sure that the percentage of cases in which there was mental conflict was high.

With regard to the question of moral imbecility, like Dr. Potts, he would not have the term. But when Dr. Branthwaite said there was this type of man with whom one had to deal, he agreed. What was wanted was to have a legal provision for making a constantly repeated commission of a particular offence a reason for permanent segregation. That seemed to be the only logical course, and sooner or later it would have to be adopted.

Lt.-Col. J. R. LORD said that he doubted if there was such an entity as moral imbecility. He thought that such a one-sided defect was an impossibility, and that it must be accompanied by other psychopathic failures. If, however, there was such an entity, surely the Mental Deficiency Act, as at present constituted, excluded many cases from its operations. Moral defects did not ordinarily develop until some very fundamental instincts began to be called forth by age and environment. Cases of moral deficiency of a congenital origin could not be dealt with because the deficiency in this respect did not show itself until puberty. Yet it had been present from birth. Therefore if the Act was so altered as to cover moral defect showing itself up to puberty and early adolescence, then many more of the cases of the so-called moral imbecility would be dealt with under the Act, as was the intention of those who had designed it. At present most of these cases were lost. For instance, a moral defective, one without intellectual defect from birth, who showed sex perversions at the age of fourteen, did so because he had not been in a position to exhibit moral deficiency before that age. The moral defect only appeared when the physiological sex processes came to maturity and had a chance of operating. He hoped that shortcoming in the Mental Deficiency Act would be remedied when the Act fell due for revision. Many who later might become habitual criminals would thereby be put under control at an early age.

Dr. J. G. SOUTAR said that surely the difficulty in regard to moral imbecility was the same as that experienced when people spoke of religious mania. In this discussion speakers were mixing up an ethical concept with a psychological question. It was merely a matter of labelling, and this labelling was introducing a difficulty where there really ought not to be one at all.

Dr. POTTS, in reply, desired to thank very much all who had taken part in the discussion on his paper, as well as all who had listened so patiently to it.

With regard to the question of the moral imbecile, it struck him at once that he would have dealt with some of those cases by rectifying them as ordinary mental defectives, because mental defect did not only mean intellectual defect. The person who was asocial, who did not behave well when treated properly, was mentally defective, and that was a different case from one of mental conflict. One who suffered from the latter was normal in the first instance; there was no defect existing from an early age, as was the fact with a mental defective. If one having a mental conflict was properly dealt with he could again become normal.

Concerning the so-called moral imbecile referred to in his paper, he did not understand how such a case could be certified under the Mental Deficiency Act. He had been in a high form in a public school, and he was now earning a good living in another country, and for two years he had been behaving well. The speaker did not think there was any inborn defect in that case, such as the Mental Deficiency Act required should be present. The difficulty was partly one of definition, but he thought many could be dealt with as mental defectives.

Many drinkers were mental defectives, and it was because they were, that they drank. What he had in mind was, that there was a certain small group of drinkers who were amenable to treatment, and that there was a larger number who were incapable of controlling themselves right from the beginning, and little could be done to help these latter except to place them under control.

LUNCHEON GIVEN BY THE MEDICAL STAFF OF THE BIRMINGHAM MENTAL HOSPITALS.

The medical staff of the Birmingham Mental Hospitals entertained members of the Association to lunch at the Grand Hotel on Thursday.

At its conclusion, Lt.-Col. J. R. Lord, the President-Elect (the President being considered a member of the staffs), proposed the health of the medical staff of the mental hospitals of the district. He said that if there was one thing which especially distinguished Birmingham, it was its genius for taking advantage in

all its enterprises of the best which could be obtained. Birmingham people took advantage of good art from all over the world, and in all parts, civilized and uncivilized, Birmingham reproductions were to be found! And the City had secured to itself the services of Sir Frederick Mott and Dr. Graves, again exemplifying this genius for appropriating good material. He hoped as many as possible would visit Hollymoor Mental Hospital in the afternoon, as he could assure them it would be well worth their while. They had enjoyed their lunch, for which it was their desire to return thanks, and their meeting in all respects was proving a great success, thanks to Dr. Graves, his colleagues, and the mental specialists of Birmingham.

The toast was cordially pledged.

Dr. GRAVES, in responding, said it was a great pleasure to the medical staffs to do what they could to render the visit of the Association to Birmingham a success. It was now many years since the last visit of the Association to the city, namely, when Dr. Whitcomb was Medical Superintendent of Winson Green. He apologized for the absence of their senior colleague, Dr. Roscrow, which was due to the state of his health. He hoped the success of the meeting so far would be continued to the end.

AFTERNOON SESSION.—THURSDAY, JULY 9.

At Hollymoor Mental Hospital.

The PRESIDENT in the Chair.

PAPER.

The Iodine Content of Thyroid Glands (Laboratory Demonstration), by Dr. PICKWORTH (see p. 703).

The PRESIDENT said that no doubt there were two factors at work in connection with the amount of iodine to be found in the thyroid gland: the first was the deficient manufacture of thyroxin, and the second was the excessive use of the thyroxin present. Because if one took the gland of a pregnant woman it would be found that there was a deficiency of iodine in it, even though the gland showed hyperplasia and an increased activity. He had found in a case of cirrhosis of the liver that there was an increase of iodine in the gland.

Another point he wished to emphasize was, that one must judge of this lack, not by the amount of colloid which was in the gland, but by the healthy condition of the inter-vesicular epithelium, as those were the cells which produced the iodine.

The method of estimation which Dr. Pickworth had just narrated was a more reliable one than the method he, the speaker, had himself adopted, and the results of which he communicated to the Association at its Belfast meeting last year. Still, the facts given then were in accordance with those found by Dr. Pickworth now. He had found a healthy-looking gland with very little colloid. It was the case of a man who died three days after having acute septic peritonitis, and there were 27 mgrm. of iodine in his thyroid gland. There was also another case, in which a man shot himself in Charing Cross Hospital. The proportion of iodine per gramme of gland was 1 milligramme, therefore he thought Zunz's estimate of 15 in the case of wounded soldiers was low. Those were obtained in hospital, and many of the soldiers might have suffered from sepsis. He thought Dr. Pickworth would find that when he got a case of a healthy man who had died of an accident, the amount would be about 1 mgrm. per grm. weight of the gland.

The research did show this variability in the size of the gland was more marked in mental hospital cases than in general hospital cases. Dr. Kojima, who worked with the speaker for a year at Claybury, carefully weighed the body of the patient and weighed every endocrine gland and the reproductive organs, and there was found to be a great variability in the weight of the gland, and it did not seem to matter what was the weight of the body. Sometimes a man who died with a low body-weight had a large gland.

Dr. Pickworth had referred to the adrenal cortex. That was now being worked at very carefully, and Elliot found there was a diminution of the lipid cholesterol ester in the cortex of the adrenals when sepsis was present. Cholesterol was known to have an antitoxic action, and probably death occurred not only

because of the absorption of the poison, but also owing to the loss of resistance by virtue of the wasting of the substance in the cortex of the adrenal gland. What was being done in the laboratory here now was to make a chemical estimation of the cholesterol. Experiments done on animals had shown that when they had had a septic disease for some time, their cholesterol was greatly diminished in the adrenal gland. What was required in future was a study of the subject intensively—that is, get absolutely good clinical notes of a few cases and work out the findings in the whole endocrine system and the reproductive organs.

Dr. Pickworth was to be congratulated on the admirable work he had done, and the clear manner in which he had placed it before the meeting.

A demonstration of the process used in estimating the iodine content of thyroid gland and other research work in progress was given in the research laboratories of the Joint Board by Sir F. W. Mott, Hon. Director, Dr. Pickworth, and other research workers.

These laboratories comprise three large rooms and two smaller ones; the largest is used for bacteriological and histological routine, the second for chemical analyses, and the other for serological and special work. Of the two smaller rooms, one is used as an office and the other as a dark-room. The laboratories are equipped with incubators, autoclaves, centrifuges, ovens, photomicrographic, colorimetric and improved (Haldane) gas analysis apparatus. Close by is the animal house.

The respiration chamber used for the estimation of basal metabolism is situated near the Large Hall, and consists of a chamber with lead-lined walls and a door which can be made airtight. The interior is decorated, and contains a fan and a water-heating and cooling system. The chamber, together with other apparatus for this special work, was provided from a fund which was given through the Board of Control to the Honorary Director out of a grant from the Medical Research Council.

RECEPTION AND TEA.

During the afternoon there were present at the hospital, to receive members and their friends, Alderman W. E. Lovesey, *J.P.*, Councillor Miss Bartleet, Councillor Macdonald, Councillor Longford, Sir David and Lady Davis, Sir James and Lady Curtis, as well as Dr. and Mrs. Graves, Dr. Forsythe, and other members of the hospital's staff.

A photograph was taken in the grounds, and an ample tea was later provided in the recreation hall, where the City Police Band, by kind permission of the Chief Constable, Mr. C. H. Rafter, played selections under the conductorship of Mr. Richard Wassall, *F.R.C.O.*

MORNING SESSION.—FRIDAY, JULY 10.

At the University Buildings, Edmund Street, Birmingham.

The PRESIDENT in the Chair.

PAPER.

The Institutional Treatment of Mental Deficiency, with Special Reference to Occupational Training, by Dr. A. M. McCUTCHEON (see p. 694).

The PRESIDENT said he was sure it was the opinion of both members and visitors that they had just listened to a very valuable and practical paper, by a man who had had experience, and who, at Monyhull, has done splendid work in creating this excellent colony. He had himself been over it, and had been much impressed. He asked whether there was at Monyhull, as there was at the Royal Albert Institution, a special villa set aside for residence of those who showed good conduct, as a sort of stimulus to others to earn a similar privilege, the understanding being that if the good conduct was not continued the residence there ceased. He also asked whether there was an encouragement of singing in the form of singing classes. That was being done a good deal in America; the singing of old folk-songs produced a sense of joy in the singers, for a person could not feel unhappy while singing cheerful songs. He, Sir Frederick, had a good deal of experience of that during the war, and there was in existence a vocal therapy society, in which he was interested.

Dr. M. HAMBLIN SMITH said he had been exceedingly interested in Dr. McCutcheon's paper. He was specially struck by what he said about the influence of uncertainty and anxiety in epilepsy, as he, the speaker, had himself noticed it. There came to prisons a considerable number of epileptics, where they were specially located, and a careful record of their fits was kept. There was no doubt that the fits were more frequent during the time the man was kept in suspense awaiting trial: he was not sure whether he would be convicted, nor, if he were convicted, how long his sentence would be. When he knew the worst—or the best—the fits were definitely less frequent.

The work at Monyhull was, no doubt, very valuable in many ways, and it was very rare to get a mental defective on conviction from the City of Birmingham; they had, most of them, been segregated in Monyhull or elsewhere, and those who were not, but came into contact with the law, were remanded for examination and dealt with.

Dr. Potts would bear him out that their experience was that the cases which had to be certified under Section 9 of the Act were, nearly always, cases which came in, not from Birmingham, but from other committing courts. There were many people who were mentally unstable, but could not be brought within the definition given in the Mental Deficiency Act, and they had been a constant source of trouble for many years. Arrangements had now been made for the collection of those cases at certain selected prisons in the country, and Birmingham was one of the places. These people were placed in a particular part of the hospital, and were looked after by a special staff. It was hoped to improve that staff later on, and to get there men and women who had been trained in large mental institutions. The inmates there were subjected to a modified discipline, such as was necessary to ensure peace and quietness. And the effort was made to teach the prisoners simple handicrafts in the evenings, and employing them out of doors whenever the weather was suitable. This experiment, which had been running six months, had been a complete success; there had been practically no difficulty with the people, and it was obviously open to very great extension in the future.

Dr. W. A. PORRS said it had been a very great pleasure to him to listen to this very interesting paper. He could not say anything in criticism of it, as there seemed to be nothing to criticize. He congratulated Dr. McCutcheon on his paper, and took the opportunity of telling the meeting that he used to visit Monyhull before the reader of the paper went there, and he also visited it since Dr. McCutcheon was appointed, and the difference was extraordinary, especially in regard to the behaviour of the inmates. He was thinking particularly of one girl who was a cause of very great difficulty in respect of the Mental Deficiency Act. She was a most unsatisfactory character, a virago and a hooligan, but she had now been trained to be a different individual; she came and spoke spontaneously, and said what benefit she had received, and how she was enjoying her life in the laundry. On his last visit she was looking forward to the time when she would be considered to be well enough to come out.

With regard to the question of training, he did not think Dr. McCutcheon had sufficiently emphasized the great assistance he received from his nurses, owing to his stimulating them to develop the training, and to introduce ideas of their own. That was a most important point, and one which possibly was overlooked in some instances. A short time ago he was visiting another institution, where there was an excellent children's section. The work done by the children there was extraordinary. He asked the head teacher there about her work, and she said one thing was to think out fresh things for the children to do, and fresh methods of training. This seemed to produce beneficial results with the children, and it kept her interested in her work, so preventing her from deteriorating in the way that some attendants in some institutions did.

With regard to the singing, when he was at Barr Hall he heard the children sing a song with four long verses. They were all children of school age, and they sang all the verses from memory, and the tune and time they kept were very good. These were not even regarded as educable children; they were classified by the Board of Education as "uneducable," and they were not allowed to go to a special school because they had been adjudged incapable of benefiting from such. His view was that if these cases were taken in the right way, an enormous amount might be done by training them, and this made them much happier than they would otherwise have been.

Dr. G. A. AUDEN said he would like to congratulate Dr. McCutcheon on his paper. He thought it illustrated one or two points very materially. First, the fact that a large institution allowed of that classification which no small institution could offer, and a very necessary departure from monotony. He was acquainted with two charitable institutions, in which the women did little but laundry work; he thought, they found that after six months of that work, with no hope of any change of occupation, there were outbreaks of restlessness and bad behaviour. The problem seemed to be essentially one of classification, and he had been very interested to hear Dr. McCutcheon's method of classification, because two years ago he, the speaker, had the opportunity of studying the methods in vogue in Austria and in Germany. The tendency in those countries was to regard both feeble-mindedness and psychopathic states as different facets of a many-sided problem. They did not aggregate their defectives into industrial schools, reformatories, etc., but they attempted a classification on purely psychological grounds. He thought there was a danger in that, and that the German and Austrian schools, at present, tended to leave the ground and take flights in their psychological classification, and that this sometimes led to further and further elaborations of type and sub-type, which were not always satisfactory. At the great institution of Eggenburg, some fifty miles from Vienna, they received children and young adults for various conditions, including those who, in England, would be under the Poor Law institutions, industrial schools and institutions for the feeble-minded. They were then classified on psychological grounds and grouped in the various homes, each of which housed twenty-five children. The first group consists of children suffering from neglect and ill-treatment, but showing no character changes. The next group includes the children showing some neuropathic condition, very generally in the form of mental conflicts arising out of home circumstances (*Eltern konflikt*). The third group are cases of gross neglect with conflicts of a more pronounced type. These children form the gang-type familiar to us (*Plattenbrüder*). Fourthly, more severe neuropathic conditions, with true character defects; followed by the group of children of slightly psychopathic states, but not markedly unstable. The sixth group comprises the aggressive "Apache" type, frequently with reduced intellectual capacities. The two remaining groups are the more severe psychopathic conditions, epilepsy, etc., and the true feeble-minded children (*Debiles*). That this is no mere academic classification may be recognized at once when the different groups are examined *en masse*.

There were advantages of a classification on psychological grounds, but, as he had already intimated, there was a tendency to make arbitrary subdivisions and sub-classifications. He asked whether Dr. McCutcheon had found that he could classify on grounds of that kind, and, especially, whether he came across the types which the Vienna school described. Prof. Lazar, who was in charge of the psychological department of the Children's Court in Vienna, said he found a number of children who belonged to the kobold type, because they had the physical appearance of the mythical goblin. The professor stated that of five child murderers he had examined, every one belonged to this class. The characteristics of the type were that they were short and thick-set, with a powerful jaw and a thick head, and their tendencies were anti-social. Havelock Ellis's account of Wainright the murderer gave a typical description of this professor's type.

And there was another type, which corresponded to the male kobold in the female—the steatic, the virago young woman, who had coarse hair, coarse features, and showed a tendency towards sexual delinquencies. In these there was probably some endocrine disturbance in operation.

Arising out of the question of the discharge of these cases, he asked whether Dr. McCutcheon agreed with the views of Dr. Fernald, of the Waverley Colony, Massachusetts, that if these children could be brought under care early, one could, by inculcating social habits, get them to be sufficiently satisfactory to inhibit their anti-social outlook and become reasonable members of society, and so have the right to some liberty, under restrictions of supervision, etc.

Dr. W. REES THOMAS said he had an opportunity of visiting Monyhull last year, when Dr. McCutcheon escorted him round. He was able to endorse every remark which had been made concerning the efficiency of the organization, and especially as to the industry displayed. At Rampton State Institution they had

a different proposition, for there they dealt with the failures of other institutions; failures of special schools and of ordinary schools and failures from prisons.

There were one or two minor points that he would like to touch on. With regard to trades, he was often asked what was the use of teaching people boot-making, seeing that if the individual went out he would not be able to earn his living at boot-making, as the industry was dying out. To this his reply was that it was a question whether the person could work at all. If in such an individual's mind one could instil the idea that he must work continuously during working hours in order to derive real pleasure from life, one had thereby gone a long way towards making such individual less anti-social than he had been formerly.

He joined issue with Dr. McCutcheon on the question of output, as he thought a definite output was the most important question of all—he was not meaning sweated labour. In his institution books were kept in which the output of each inmate was recorded, and he could assure the meeting that the workers counted the amount of work they turned out, and it was entered in the book for their pleasure. In that way very much more work was got out of them than would otherwise have been the case, and not because they found it necessary to work harder, but they had the advantage of the pleasure of having accomplished something, and that all about them knew they had accomplished it. The other workers were very jealous, and when they knew a certain thing or a certain quantity had been done by one, they said they would do the same to-morrow. Thus the amount of work increased, to the advantage of the patient, and to the advantage of the institution.

With regard to the mixing of the sexes, fifteen years ago he visited Darenth, and there he was much impressed by the fact that the female and the male patients went to the dances together and they seemed to enjoy it; there was an atmosphere of social equality and goodwill, and usually when the music started the ladies got up first and went across to ask the gentlemen to dance with them. As long as he had anything to do with this kind of work he would continue this mixing of the sexes. He dealt with people who were amoral or unmoral. It was a disappointment if a patient's conduct forfeited attendance at the dance. If a patient on the female side got into trouble, soon the male side got to know of it, and the talk was, "So-and-so has misbehaved herself, and will not be at the dance on Thursday." These were very important matters to patients. The intercourse was purely social, and to some extent kept them in touch with an outside world, even though they could not mix to any great extent.

He quite agreed that it was very important to train the staff properly, and that was also very difficult. The institution had been going five years, and it had proved very difficult to keep the staff, especially the nurses. Fifty *per cent.* of the staff were trained.

At Rampton the patients were graded into four classes, the fourth received no privileges and no pay. The third grade received *2d.* per week, the second grade *4d.*, and the first grade *6d.* per week per patient. That was found to be a very helpful thing. A very low-grade patient might reach the first class. They were classed according to conduct, and secondly according to work, *i.e.*, in relation to their capacity to work, and as to whether it was skilled or unskilled work.

They had not many epileptics at his institution, but they were doing some work on the subject. They found that their epileptic patients had a marked deficiency of calcium salts in their blood, the standard against which the blood was tested being the blood of the other patients. In a certain proportion of the epileptic patients, the administration of calcium lactate with parathyroid extract had a wonderful influence in reducing their irritability, and their capacity for work had thereafter considerably increased. For a small proportion of the cases this treatment had proved better than bromide of luminal and sodium.

As to singing by the patients, they had at his institution singing classes, and one evening a week was set apart for this, and it was very popular with the patients.

In answer to Dr. Auden's remarks, he, the speaker, had some murderers among his patients, and he did not find that they belonged to any particular physical type, nor could he say they had any very characteristic mentality.

Dr. G. H. MELSON said that the Monyhull institution was a neighbour of his, and that fact enabled him to answer one of the questions put by the President. He was able to say that the singing there was excellent, and he had listened to it with great pleasure. It had been a delight to him to see the young people working in their gardens.

He could, from personal experience, echo the praise which had been given to the work at Monyhull.

Dr. McCUTCHEON, in reply, said he felt very grateful to the meeting for the way in which his paper had been received. He wrote, and had read, his paper with a feeling of great diffidence, as he felt that it would fall far behind anything which would be contributed to that Annual Meeting.

They did attach great importance to the patients singing. If he wanted to know what was the pantomime music for the current season, he had only to listen to his junior patients singing. The singing was organized and supervised by the nurses, and the same applied to the adults, taking chorus work, etc. He thought the real reason why his patients were so fond of going to church was that they could sing the hymns, which they certainly enjoyed.

With regard to having graded places in the home, as a reward of good conduct, they had places in which good conduct cases were put, and recently a large house fairly near had been bought, in which lived 24 good-conduct women. One of the conditions was that if they misbehaved themselves there, they were sent back to the general building. There was a spirit of emulation in order to secure the rewards.

Dr. Potts raised a very important point, namely, that of the members of the staff bringing their own ideas into the work. That was tried as far as possible in the institution, but he confessed that many members of the staff, excellent as they were in their duties, had not many ideas as to artistic and other work. However, in connection with sewing and artistic work, new ideas were encouraged to produce variety and keenness of emulation.

He had been interested in Dr. Auden's account of the work on these lines done in Austria. In his institution he had none of the types to which Dr. Auden referred, but he had refractory homes, and if they were "combed," he might find some which came into the categories mentioned. The worst of the cases were sometimes allowed to "let off steam," so that the rest of the patients and staff could sooner get some peace.

With regard to Dr. Rees Thomas's remarks, he, the speaker, expressed himself badly when he said not much importance was attached to the output. He did appreciate the importance of the stimulus afforded by some doing better than their neighbours. What he meant was that he was not upset or disappointed if he went round the shop and found one person could do only one little bit of work, whereas others could turn out whole baskets. He did not worry any person to turn out any particular piece of work in a given time. Still, the more work they did turn out, the better he was pleased. And the patients did appreciate the praise they received, and they liked to "get one in" in contrast to their neighbours.

He did not find himself able to agree with the mixing of the sexes at dancing. Boys and girls had worked together at his institution, and the results were rather disastrous; it upset many of the children for months afterwards. Still, the sexes did mix a good deal in going about the grounds, and the gardeners, stokers and porters on the women's side wandered about practically unattended, and the girls were walking about the terraces, and they met and spoke. That, however, was a different matter from the physical contact in the dance-room. He knew this mixing was done in mental hospitals, but in his institution he was rather afraid of it.

The training of the staff was a difficulty, but it had been somewhat got over by the present practice of taking on their nurses and attendants on a three years' contract. The difficulty was that girls came to the institution in the summer-time, and when the long winter evenings came they went off to work somewhere else nearer the town, so that they could go to cinemas and other amusements. That did not help the working of the institution. If the agreement was broken, a forfeit had to be paid. Training could therefore now be done, and a better type of nurse was secured.

PAPER.

The Psychopathic Personality, by Dr. M. HAMBLIN SMITH (see p. 683).

THE PRESIDENT said this was a very clear exposition of the psychogenic causation of mental disease, especially dementia præcox. He, Sir Frederick, had been trying for many years to prove the physiogenic side. Even taking this latter view, undoubtedly contemplative fear of any kind would permanently upset the endocrine system; that was seen during the war. Fear of being sent back to an intolerable situation was sufficient to bring about an outpouring of adrenalin into the general system, with all the signs of Graves' disease. One thing which Freudians failed to recognize was self-preservation as an instinct. That was emphatically exemplified in the war. He saw officers who came back and who had lost all the instincts of reproduction, and did not want to see their wives and sweethearts, because this fear came first. He thought it was quite right to discuss the subject from both sides, and he was afraid that one side seemed rather hopeless, as he had not yet heard of cures by psycho-analysis, though he had learned of rather striking tragedies from psycho-analysis carried out over considerable periods of time. There were many people practising this treatment who were not fit to do so.

Dr. M. J. NOLAN, who now had to leave, said he specially desired to be associated with the vote of thanks for the hospitality which had been enjoyed by the members at this meeting which would be brought forward at the conclusion. He did not think he was ever at a meeting where there had been such instruction and such hospitality.

Dr. J. G. SOUTAR said this paper had been exceedingly interesting to him, and a valuable—he would not say counterblast—but a very valuable addition to the papers which had been heard from the other point of view. As the President had said, he did not think a man could be cut up and separated into two parts. The mind and the body were inseparable; they constituted the personality of the individual. One could not omit, on one hand, pathological and physiological conditions, nor, on the other hand, could one omit the very definite psychogenic considerations. It was due to the harmonious interaction of the two that there existed the complete man.

What was of the greatest importance, when looking at the question from the point of view Dr. Hamblin Smith had submitted, was that one must begin very early in the training of mind; the mind was capable of training, just as was the body, and there had been too long a failure to recognize that there were definite rules of mind, and that action must be in accordance with these from the commencement if there were to be individuals capable of meeting the ever-increasing stresses of a more complicated civilization. It was of no use for us to throw our hands up and lament that terrible difficulties surrounded us; they were the inseparable concomitants of the progress that was desired. And, in order to successfully meet these difficulties, it must be recognized that, if understood properly, psychology could supply rules for the upbringing and for the education of the people. On that side there was much hope in the paper which Dr. Hamblin Smith had just presented.

He was not prepared, that morning, to enter upon a discussion on the various points raised, which were still controversial, because the profession was still groping after truth, and had only begun to see a small part of the subject. Much more must be known before a dogmatic attitude could be taken up as to the underlying processes. But undoubtedly at the present time a great deal could be done by enabling people to understand what their difficulties were, and to recognize facts as they existed, remembering that it was not so much the facts of life as the attitude towards life which was answerable for mental disturbances in the individual.

Dr. W. REES THOMAS said he had a large number of patients such as those described by Dr. Hamblin Smith—in fact 50 per cent. of them came into his various groups. The only comment he would make was that the position was an extremely difficult one. He had psycho-analysed many cases, most of them unsuccessfully because one could not get at them, and, great as those difficulties were, they were up against a greater, namely the question of the time occupied. One's time was so much taken up with the administrative functions of the day, that continuous time could not be given for this type of work. Therefore one rather

tended to veer towards the physiological side, not because one recognized that one was more important than the other, but, working in the laboratory, for instance, one could put in a couple of hours, then leave the remainder until next day. In order, however, to obtain continuity with patients, one must work at it every day for a certain time, and those who had experience of institutions knew how difficult and disappointing it was, even from their own point of view, because the results were so few and so small.

With regard to the incestuous stage, Dr. Hamblin Smith did not pay much attention to the development of the ego-ideal, which was very important. As a matter of practice he found that the faulty development of the ego-ideal as opposed to the ego appeared to be associated with some of these abnormalities. He would like to hear Dr. Hamblin Smith's views on this subject.

Dr. G. A. AUDEN said he found that a considerable number of the teachers he was called upon to examine exhibited an inferiority complex. Very many of the teachers who found that they had to ask for leave of absence for long periods owed their disability, generally with a physical manifestation, to an internal mental conflict. In teachers that inferiority complex might show itself in the attempt to combat the feeling of inferiority by the collection of diplomas of all sorts. The result was that they overlooked and got into a vicious circle with a psychological conflict, and there ensued a nervous breakdown.

Dr. HELEN BOYLE also expressed her appreciation of the paper, and said that at the Lady Chichester Hospital there were received a good many of these cases of psychopathic personality; also at her own house she saw some. There had been a great gain by considering the mental processes, as it was letting in air where there was none before. Mental hygiene, as it was being developed, was going on in much the same way and on similar lines to physical hygiene.

Apart from elaborate analysis, which she admitted required a great deal of time, something short of this often answered the purpose; it let in air, and enabled the person to understand that things which loomed big in the darkness of his personality had a more hopeful appearance when the light of day was on them. So that it was safe to chaff the patient about them. This gave him courage and enabled him to take care of himself. In the case of women more than in the case of men, a long analysis concentrated them upon themselves, and there was some risk in the process. It should not be so, one would think theoretically. Women were apt to think that their own mental processes were of such importance that there was not much necessity for them to attend to anything else. She had a certain number of cases who had been through analysis, and in whom it had failed, and these might have benefited by a partial analysis, not probing too deeply. She stressed the importance of attention to both mental and physical states. One girl came to her after 2½ years, during which she had had a complete analysis, and she came to know if the speaker could get her better. It turned out that she had a chronic appendix condition, and there was going on a very considerable septic absorption from the bowel. There was a danger in having psychopathic clinics without full facilities for physical examination and treatment too, because people were apt to go to these clinics with a certain amount of auto-diagnosis, and sometimes they were treated for some time before they had been thoroughly overhauled. She hoped that in future mental clinics would be largely developed in association with general hospitals.

Dr. R. G. M. LADELL spoke of the pleasure and profit he had derived from listening to this paper, which was up to the high standard one was led to expect from Dr. Hamblin Smith. Such investigations gave the opportunity of investigating root causes, because of course the aim of all medicine was, first, prevention. The apathy of the bulk of the profession to the most recent advances in psychology was difficult to understand. He asked his hearers to reflect on the great amount of misery and economic loss which took place in Birmingham, and any similar centre of population, through the minor neuroses, hysteria, etc. which remained untreated. If they went to a general hospital they might get their appendix removed, or they might get their bottle of bromide, but they drifted about from one place to another, and they did not get cured, and the older school did not seem to have any alternative to put forward. But every symptom had a meaning, and the patient should be treated on those lines, and those who did that succeeded in curing them.

He agreed with Dr. Helen Boyle that in many cases it was not necessary to

carry analysis to the rock bottom; one could gain a clear conception if one saw the underlying principles working; but it was not inevitably necessary to bring these to the full consciousness of the patient. If this latter fact were realized and appreciated, psycho-analysis would receive more support than it had done from the majority of the profession. A great deal of good could be done in general practice if one had a conception of the psychological principles at work, and if the doctor was on the look-out for hidden conflicts as well as obvious causes. He could then quickly see what was amiss, reassure the patient, and put him on the right lines after a short consultation. He considered that the crying need of the day was to have mental clinics associated with general hospitals, where proper skill would be used, and where future practitioners could be trained in the work. At present there was a great gap in these matters. Men passed through the curriculum and went out into practice without any idea of how to deal with cases of this kind, and yet they would see many such in their consulting-rooms.

The PRESIDENT said that every neurologist who was a psychologist recognized that these cases of psycho-neurosis and neurosis were curable. During the war he had perhaps the largest experience of anyone in this country in regard to such cases, as he was neurological expert at the War Office and had charge of their neurological clearing hospital at Denmark Hill. One patient had been paralysed two or three years, and had been to brine baths and to many hospitals. He cured that man in less than a week, simply by faith; he believed he was going to be cured. People of similar type went to Lourdes and were cured by hundreds, because they went in the firm belief that they would be cured. He agreed that for the majority of these cases one did not require psycho-analysis; auto-suggestion was needed for them—a sort of contra-suggestion. He agreed with the last speaker that this and similar subjects had been much neglected by the medical profession. It was a tragedy to see so many people who had been in hospital a long time suffering from functional conditions such as paralyses, and which were curable in a short time. The members would realize the importance of Dr. Helen Boyle's remark that these mental clinics should be associated with the general hospitals. It was realized fully that there were physical conditions which could not be cured by suggestion. He saw once a gentleman who believed entirely in the suggestion method of treatment, and he was talking to a patient, and he, Sir Frederick, said the man had got a cerebral tumour, with double optic neuritis, brachial monoplegia and headache, and that no good would be done by suggestion. The man went to the Pensions Department, and they wanted to stop his benefit because, they said, his case was a functional one. He, the speaker, knew he had had a fracture of the vertebra and some meningitis there, and the signs of an oncoming complete paraplegia. What was required was the combined examination of patients, not neglecting the physical side, because every now and again cases supposed to be functional were instances of oncoming physical disease, especially disseminated sclerosis of the spinal cord. He had been able to save many men, and some widows, from being refused pension by pointing out that the condition had not been recognized in the early stages.

Dr. G. H. MELSON said he had seen a good deal in his long life as a general practitioner, and he wished to re-echo what Dr. Helen Boyle had said. The profession, he considered, had been led away by the statement of Dr. Bernard Hart that the psychological aspect of the mind should be kept distinct from the physiological. He once heard a paper by a confirmed psycho-analyst who gave an interesting case of a man. After the reading of the paper the speaker asked him how long the treatment took, and the reply was that it was, roughly, five interviews a week for twelve months. After a paper he himself read, a doctor brought to him a personal friend who was in trouble. He had a talk with the patient, who was delighted with the amount of good which had been done him. Why could not the psycho-analysts dispense with much of their elaboration, and bring it down to a few suggestions and a few interviews?

Dr. HAMBLIN SMITH, in reply, said he had not supposed that his paper would meet with universal approval; he had a feeling somewhat like Daniel's when he came to the lions. He now wished to thank members for their kindness. He had no idea of making a counterblast to what the President or anyone taking the physical side had said, or to depreciate in the slightest degree the work which the President had done, and for which members entertained such respect. He had

merely wished to suggest that there was another side to the question. It might be that both were equally right—or wrong—and that mind and matter were each expressions of one reality. He regarded the self-preservation instinct as secondary to the instinct of reproduction, and he agreed with what Sir Michael Foster said forty years ago, that the carrying on of the race was, broadly—within limits—the reason for existence.

He agreed that those who practised psycho-analysis should be persons of education and character, but one saw tragedies also from the other side. It was not uncommon for him to meet people who had had their teeth and tonsils and other superfluous organs removed, and apparently without any good effect on their conduct.

In answer to Dr. Rees Thomas, he recognized the difficulties of carrying out psycho-analysis to its fullest extent, because of the time required for it. With regard to the ego estimate, he had spoken of that, remarking that it came after the incestuous stage, *i.e.*, the narcissistic stage, but he had not time to write a full account of the Freudian theory.

With regard to Dr. Helen Boyle's remarks, he agreed that in many cases there was no need for a very elaborate psycho-analysis, and that a shorter process might do much good. At any rate, it had the advantage that it enabled one to understand the patient, even though it might not result in the patient understanding himself. What it was necessary to show these people was, that what they regarded as uncommon experiences were quite common, and normal to everyone. To have accomplished that was to have done much.

He quite recognized the necessity for physical treatment. But with regard to general hospitals, he did not agree with Dr. Helen Boyle that establishing mental clinics in connection with general hospitals would do good, because he was certain that then, things being what they are, those clinics would get into the hands of people who knew nothing about psychology, and who, because of their own repressions, were bitterly prejudiced against those who practised all forms of psycho-analysis. And there were special difficulties in connection with dealing with dementia præcox cases, because of their "shut-in" personality.

Dr. Melson had said it was necessary to distinguish between the psychological and the physiological side of the mind, but in his, the speaker's, view, one could not speak of the physiological aspect of mind, and nothing but confusion resulted from the mixing up of physiological and psychological considerations.

He desired, in conclusion, to give a personal explanation. From a conversation he had had with one or two members, it seemed he had given a wrong impression to Dr. Graves in a telephone message he had with him two or three weeks ago. He had hoped, not that the Association would make an official visit to the prison, but that some members would come to see what was being done there. He pointed out to Dr. Graves that it would be necessary to apply officially to the Prison Commissioners for permission, and he regretted that this had been understood as being a difficult process, which was not the case.

The PRESIDENT said the Association felt very grateful for this very valuable paper, and he was glad there had been included in the programme for this Annual Meeting definite arrangements to have papers on mental deficiency and delinquency. He hoped this precedence would be adhered to in future. It had been a most successful meeting in that respect, thanks to Dr. Auden, Dr. Potts, Dr. McCutcheon and Dr. Hamblin Smith, and to Lt.-Col. Lord, who made the suggestion.

VOTES OF THANKS.

The PRESIDENT called upon Dr. Soutar to propose votes of thanks to the University, to the Mental Hospitals Committee of the Corporation, to Dr. T. C. Graves and the medical staffs of the Birmingham mental hospitals for the many kindnesses the members of the Association and their friends had received during their visit to Birmingham.

Dr. J. G. SOUTAR said that, in the absence of Dr. Nolan, who left a short time earlier to return to Ireland, he had the pleasure of moving a formal vote of thanks to the various bodies and individuals whom the President had named. The meeting had been a success. It had produced papers making important contributions to their knowledge, and summations of knowledge, and to the gentlemen who made those contributions the President had tendered thanks.

In addition to the valuable scientific information, the success of this Annual Meeting had been largely due to the contributions made to members' enjoyment and instruction by bodies outside the Association. Of these he was asked to mention the City of Birmingham, which had shown its interest in the Association by the presence of the Lord Mayor at the Dinner, and by the sympathetic remarks he made about the Association and its work. Thanks were also due to the University authorities for allowing the use of the excellent accommodation for the meeting, and for a delightful social evening. Likewise they wished to thank the Corporation Mental Hospitals Committee for the very important part they had played in contributing to their knowledge and pleasure, and the Joint Board of Research, of which the President of the Association was a leading spirit. He wished also to associate with these remarks Dr. T. C. Graves, who had contributed in so many ways to the Association's enjoyment and instruction. On the whole, this had been one of the most interesting meetings he remembered in quite a long course, and it gave him much pleasure to propose this resolution.

Lt.-Col. J. R. LORD, in seconding, said this was a resolution which would commend itself to members of the Association without much support from him. There were two matters, however, he would like to refer to. One was that a member of the Association who had not missed attending the Annual Meeting for 25 years broke his leg a few days ago—Dr. Nelis. He had been missed very much, and the regrets of the members would be suitably communicated to him.

Another matter was that there were a number of members of the Association who, away at the confines and outposts of the Empire, were moulding old native asylums into modern mental hospitals or founding new ones and otherwise doing splendid work for the insane, and one of these members was now present. He wished to say how pleased the Association and other personal friends were to see Dr. E. J. Samuels here from the Malay Free State. He had done a most wonderful work in that country, a record of which would shortly appear in the Journal. It was a human document of a life's endeavour, and he was proud to be able to include it in the records of the Association.

The votes were carried by acclamation.

IRISH DIVISION.

THE SUMMER MEETING of the Irish Division was held on Tuesday, July 14, 1925, at Cork District Mental Hospital, by the kind invitation of Dr. Owen Felix McCarthy. Dr. O. F. McCarthy in the Chair.

The minutes of the previous meeting were read and signed.

A letter from the Registrar of the Association was read, requesting the Irish Division to nominate a Nurse Examiner for Ireland in place of Miss Harkin, retired. It was decided to submit two names, Miss Hannah F. Barry, Matron, Cork District Mental Hospital, and Miss Helena Golding, Matron, St. Edmondsbury Lucan, as two ladies qualified to fill the post. The Educational Committee was authorized to select a Nurse Examiner from these two nominees of the Irish Division.

The following gentlemen were elected ordinary members of the Association :

BERNARD FRANCIS HONAN, L.R.C.P.&S.Irel., Assistant Medical Officer, Downpatrick Mental Hospital.

Proposed by Drs. M. J. Nolan, R. R. Leeper and J. O'Connor Donelan.

J. J. DELANY, L.R.C.P.&S.Irel., Assistant Medical Officer, Ballinasloe District Mental Hospital.

Proposed by Drs. J. Mills, R. Thompson and J. O'Connor Donelan.

Dr. JOHN G. FITZGERALD next read a communication : "Notes on Treatment by Hypnotic and Hypnoidal Methods of Extern Cases." The paper was fully discussed.

The CHAIRMAN and all present expressed their hearty thanks to him for his original and thoughtful paper, and praised his pioneer work in the treatment of incipient cases of insanity in the district with which he had been for long associated.

The CHAIRMAN put forward three suggestions as to the advocating and establishing of out-patient clinics for the treatment of early cases of mental trouble :

(a) First he favoured the idea of establishing out-patient clinics for the early treatment of mental disease, these clinics to be established in connection with district mental hospitals.

(b) An out-patient department to be attached to the general hospitals in large centres where early cases of mental disease could be seen and treated.

(c) The establishment of separate dispensaries for poor patients in connection with the general medical Poor Law services in the large towns. It was stated that if more of the cases of "dementia præcox" were treated in out-patient clinics in the early stage of their disorders, many would be found to be curable.

Dr. FITZGERALD replied to the points discussed arising out of his paper.

A cordial vote of thanks was tendered to Dr. and Mrs. McCarthy for their hospitality in entertaining the Division, and regrets were expressed that so many of the members were unavoidably absent and were unable to dine with Dr. McCarthy in the evening at the Cork Club.

This closed the proceedings.

EDUCATIONAL NOTES.

Tavistock Clinic for Functional Nerve Cases, 51, Tavistock Square, W.C. 1.—A short course of lectures on Functional Nerve Disorder for Practitioners and Students will be given at the Tavistock Clinic beginning November 16, 1925
Syllabus:

The Psychological Factor in General Practice, by J. R. Rees, M.A., M.D.

The Endocrines and General Metabolism in the Psychoneuroses, by W. Langdon Brown, M.D., F.R.C.P.

The Theory and Causation of the Psychoneuroses, by H. Crichton-Miller, M.A., M.D.

Fee for the course: Medical Practitioners, £2 2s.; medical students, 10s. 6d. Tickets for the course to be obtained in advance from the Hon. Lecture Secretary at the Clinic. These lectures are not open to the general public.

The National Hospital for the Paralyzed and Epileptic, Queen Square, Bloomsbury, W.C. 1. Telephone, Museum 7141.—Syllabus of Post-Graduate Course, October 5 to November 27, 1925.

(1) Out-Patient Clinics, Mondays, Tuesdays, Thursdays and Fridays, 2 p.m.; (2) Clinical Lectures and Demonstrations, Mondays, Tuesdays, Thursdays and Fridays, 3.30 p.m.; (3) Lectures on the Anatomy and Physiology of the Nervous System (if sufficient Applicants), Mondays, 12 noon; (4) Lectures on the Pathology of the Nervous System, Thursdays, 12 noon; (5) Clinical Demonstrations of Methods of Examination (if sufficient Applicants), Tuesdays and Fridays, 10 a.m.

The fee for the course, including Pathology Lectures, is £5 5s. For those who hold Perpetual Tickets the fee is £3 3s.

Dr. J. G. Greenfield will give Eight Lectures on the Pathology of the Nervous System on Thursdays, at 12 noon.

Dr. J. L. Birley will give Eight Lectures on the Anatomy and Physiology of the Nervous System, at 12 noon, on Mondays.

Dr. H. J. MacBride will give a course of eight Clinical Demonstrations, chiefly on Methods of Examination of the Nervous System, in the Wards at 10 a.m. on Tuesdays and Fridays, if sufficient entries are received. The fee for this course will be £2 2s. (commencing Tuesday, October 20).

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 a.m., or at such other times as may be announced.

Any part of the course may be taken separately. Special arrangements will be made for those unable to take the whole course.

Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

J. G. GREENFIELD,
Dean of Medical School.

A MENTAL BLIND SPOT.

By E. PICKWORTH FARROW, M.A., D.Sc.

AFTER working for about eighteen hours at the method of self-analysis which he developed, the writer suddenly remembered an occasion on which he had

frightened himself rather badly by gazing up at a pair of long and sharp mounted Highland cattle horns which used to hang over a certain doorway in the house in which he was born.

He had imagined at the time how terrible it would be to be tossed by an animal having such formidable structures as these, or for one of them to be run through his body. He was between 5 and 6 years old at the time of giving himself this fright, and had certainly not thought of the incident again since the age of 7, until it was remembered by the process of self-analysis, i.e., not at all during an interval of 26 years.

He was away from home with his brother at the time of the analytical recollection, and he related the original incident to this relative, remarking, "I wonder where those horns are now?" Whereupon his brother replied, "Do you mean those Highland cattle horns which hang over the dining-room doorway in our present house?" The writer responded, "Are they there now? They surely cannot be for I should have seen them," to which his brother replied that he thought they must be the same.

Upon returning home the writer was more than surprised to find the same large horns hanging up in the position indicated, although he had not seen or noticed them consciously for over twenty years. This is all the more remarkable as they were by far the largest and most conspicuous objects exposed to his gaze each morning on coming downstairs—the staircase being exactly opposite the doorway. These facts were very surprising to the writer, and the phenomenon is undoubtedly a striking instance of a mental blind spot. In spite of the fact that the horns were by far the most conspicuous objects present his mind was apparently able to ignore their existence entirely, and he saw completely through them, as it were, to the wall-paper beyond, owing to having frightened himself with them in his childhood.

If many other people possess such pronounced blind areas, as they probably do, they would, of course, never become aware of the fact unless or until the repressed emotion formerly associated with the objects had been removed by an analytic process, or by some other method.

The phenomenon interested the writer as indicating that evidence in Law Courts, for example, that certain objects were not present on a certain occasion, is not necessarily reliable. Probably evidence that certain objects were present under certain circumstances is, on the whole, far more reliable than evidence to the effect that they were not present.

The writer would much like to discover why he was so badly frightened by the horns in the first instance. The fear that he might be tossed by similar horns is not an adequate explanation, for it does not explain the underlying origin of this fear. He has found it, however, very difficult indeed to find out the actual underlying origin of such a fear as this. Still, it should be possible ultimately to discover its underlying origin by continued work at the method of free-association.

A detailed account of the method of self-analysis employed by the writer is about to be published elsewhere.⁽¹⁾ Several accounts of incidents from his early childhood recollected by it have already been published.^(2,3) It will be noted that the results obtained by this method of self-analysis are not open to the general criticism that the analyst reads the results into the mind of his external patient. Processes of self-analysis, and the results obtained by them, should thus be particularly interesting to cautious and careful persons, even if they may not be so striking as some of the results obtained with analysts.

SCOTTISH ASYLUMS' PATHOLOGICAL SCHEME.

Twenty-eighth Annual Report of the Board For the Year 1924.

[ABSTRACT.]

In this Report it is stated that arrangements were completed during the year with Edinburgh University authorities approving of the new Superintendent of the Laboratory being recognized as Lecturer in Neuropathology. From the

(1) See a forthcoming issue of *The British Journal of Medical Psychology*.—(?) See the *International Journal of Psycho-Analysis*, January, 1925.—(2) *The Medical Press*, April 29, 1925.

number of candidates who applied for the vacant post of Superintendent of the Laboratory, the Board report that F. E. Reynolds, M.B., Ch.B., Senior Assistant to the Professor of Pathology at Edinburgh University, and formerly Professor of Pathology at the Egyptian Government School of Medicine, Cairo, was unanimously appointed to fill the vacancy, and that Dr. Reynolds's appointment as Lecturer in Neuropathology at the University received the approval of the University Court.

The Board expresses the hope that a closer association may be established between contributing asylums and the Central Laboratory. One of Dr. Reynolds's important duties is to visit periodically the contributing mental hospitals in order that he may advise medical officers as to recent laboratory methods, and at the same time suggest useful lines for research.

For several years past a grant from Treasury funds has been paid by the Medical Research Council to the laboratory for scientific research work. Intimation, however, had been received last year from the Secretary of the Research Council to the effect that an alteration in the method of paying grants had been instituted, and that in future these would only be awarded for special research work receiving the approval of the Committee of the Research Council. Dr. Reynolds has been awarded a grant amounting to £200 for the current year in respect of his researches into the "Paths of Infection of the Lepto-Meninges."

Until more suitable and convenient premises are found for the Laboratory, Dr. Reynolds occupies a room in the Pathological Department of the Royal Infirmary, Edinburgh, which he has had equipped as an extension to the Laboratory in Frederick Street.

At the Annual Meeting of the Board, Dr. G. Douglas McRae was unanimously appointed Chairman of the Board in succession to Dr. Skeen, whose term of office had expired, and the Executive Committee was appointed, consisting of Dr. McRae, Chairman; Dr. R. B. Campbell, Honorary Secretary and Treasurer; Drs. Orr, Kerr, Keay, Bruce, Skeen, and Ex-Provost Stark.

JOINT BOARD OF RESEARCH FOR MENTAL DISEASES, BIRMINGHAM.

Annual Report for Year ending March, 1925.

[ABSTRACT.]

THE work of the laboratory during the past year has been to develop lines of research upon the basis of endocrine functions; special attention has so far been given to the thyroid gland, and below are given details of the basal metabolism determinations and the analyses of thyroid gland for iodine content. There has been an inquiry into the action of certain hypnotic drugs upon animals with respect to the physiological action and the effect upon the general health and well-being of the animals.

A large amount of routine serological, bacteriological and chemical work has been done for the clinical staff of the Rubery and Hollymoor Hospitals, chiefly from their gynaecological, ear, nose and throat and dental departments.

In view of the probable association between chronic sepsis and disturbed endocrine function the bacteriological work has become part of the research, and has occupied the larger proportion of the work of the laboratory.

BASAL METABOLISM.

The determination of the basal metabolism in the special respiration chamber has been improved upon both as regards procedure and in respect to refinements of the gas analysis apparatus. The elaboration and perfecting of this apparatus has occupied much time in the laboratory, and much credit is due to Prof. Haldane, F.R.S., and Dr. Graham for valuable assistance and advice.

There have been 60 determinations made of 22 patients and 11 nurses; and of these 4 patients and 1 nurse showed metabolism exceeding 110 *per cent.* of the standard, the highest being 125 *per cent.*, and 8 patients and 4 nurses showed metabolism below 90 *per cent.* of the standard—the lowest, a patient, being just under 50 *per cent.* of the standard; the remainder were within 90–110 *per cent.* of the figures given in the Harris and Benedict tables for standard metabolism.

One patient showing defective metabolism was examined on 10 occasions and showed only slight variations between 60 *per cent.* and 70 *per cent.* of the standard.

IODINE IN THYROID GLAND.

The investigation of the iodine content of thyroid glands previously carried on at the Pathological Laboratory of the London County Mental Hospital at the Maudsley Hospital has been transferred here and is still in progress.

The chemical results are being correlated as before with the histological investigation in each case.

BACTERIOLOGY.

Dental Dept.—Of 25 cases of examination of the tooth-pulp from X-ray or clinically condemned teeth 14 proved sterile by the anaërobic method employed.

Ear, Nose-Throat Dept.—Fourteen cases of sinus infection have been investigated, 3 being clinical cases, by means of a "wash-out" of the sinus or sinuses, and 11 from swabs taken at autopsy. Streptococci, streptobacilli, diphtheroid and saprophytic organisms were found in most cases.

Gynaecological Dept.—Swabs taken from the endocervix by means of special swab tubes showed organisms in 226 out of 338 swabs, *i.e.*, 67 *per cent.* It is found that diphtheroid organisms largely predominate—*e.g.*, *B. Hofmann*, *B. xerosis*, *B. flavidum*, and another diphtheroid [reference (A)]. Streptococci were quite common, also strepto-bacilli.

Three cases of puerperal sepsis have been investigated, one of which showed at autopsy a thrombosed inferior vena cava with a generalized infection of *B. lactis aerogenes*. Another showed during life a bacteraemia of a Gram-positive organism occurring in chains of cocci bacteria and threads; from this organism a vaccine was prepared and the patient's brother immunized in preparation for a blood transfusion. Transient good results in this case followed injection of aseptic guinea-pig serum complement in conjunction with polyvalent antistreptococcal serum.

Gastro-intestinal.—It was interesting to note in view of the demonstrated sepsis of the mouth and naso-pharynx that 23 of 36 specimens of test-meals showed no free hydrochloric acid.

The examinations of the faeces have shown many varieties of organisms. Streptococci are present in many cases, occasionally in pure culture.

A large number of organisms other than *B. coli* are often found, but which did not fall into the pathogenic groups by reason of their sugar reaction.

B. Friedländer often occurs in groups of cases, and *B. cloacæ* has been found in a blood-culture in one case on two successive occasions, which was suggestive that organisms usually considered "normal," or at least non-pathogenic, may multiply and cause disturbance in debilitated patients such as are commonly met with in mental hospitals.

Other work in progress includes the quantitative estimation of the fat, lipid and cholesterol content of suprarenal glands obtained at autopsies, and correlations with micro-chemical tests and histological structure.

Some interesting tables follow.

NOTICES BY THE REGISTRAR.

FINAL EXAMINATION RESULTS FOR THE NURSING CERTIFICATE, NOVEMBER, 1924.

List of Successful Candidates.

* Passed with distinction.

Bedford.—Hugh Price Searle, John Henry Bruce.

Berks.—Lilian B. Brignall.

Cambridge.—Laura H. Handcock, Florence Summerfield.

Cheshire, Chester County.—John Harry Jones, Nellie Rogers.

Cheshire, Macclesfield.—Harold Bailey, Arthur L. Hatton, Frank Ashley.

Cornwall.—William Champion, N. G. Sheman.

Derby County.—Nina K. Flixon, Mary Ann Tisdall, Edna Lownds, Joseph E. Hall, Charles Morton.

Dorsd.—Benjamin W. Webber, Geo. Paul, Lilian C. Cottrell, Edith M. Costigg, Lilian R. Dalley, Freda Gammon.

Durham.—Geo. Eli Benford, Edward Levison.

Essex, Brentwood.—Vera Irena Grigg, Violet G. Complin, Elizabeth M. Reeve, Gertrude E. Brock, Eleanor Stoneley, Rose E. Witthames, Florence M. Wise, Richard H. Baker, Percy Wm. Bird, Ernest Geo. Fry, Thomas C. Haviland, Gilbert Jewson, Percy A. W. Leppard, Herbert S. Prior, Joseph P. Swanson.

Essex, Severalls.—Samuel W. Aimes, George W. Bonner, William H. China, James John Sage, John David Watson, Harold William Ward, John Young, Lilian M. Jones, Delia M. Lydon, Edith F. Crabb, Sabina S. Mildenhall, Amy M. Osborne, Laura W. Sapsford, Gertrude E. Peachey.

Hants, Knowle.—William T. Brown, Edward V. Polkinghorne, Wilfred F. Durrant, Herbert J. Lawrence, Lilian A. Chadwick, Fanny Parker.

Hants, Park Prewett.—Nora G. Allinson, Winifred Amy Voller, Esther May Duroe, Charles Edward Pinner, Edward Geo. Gaines, Horace Leajon, Thomas H. Messan, John Samuel Stacey, Henry G. Manuel, Maurice Hailstone, William Porter.

Hereford.—George Esmond Godby.

Herts, Hill End.—John Colman, Gladys Muriel Barnes, Florence M. Ribbons, Mady Ethel Scott.

Kent, Chartham.—Arthur R. Benefield, Ernest Edward Fairbrass, Eva Flora Cooke, *Gladys G. Fellows, Fredk. James Mann.

Kent, Maidstone.—Margaret T. Doyle, *Olive Kathleen Owens, Kathleen E. Creighton, Michael J. Mulvey.

Lancashire, Whittingham.—Frederick Higham, Walter Walmesley, William Lea, George Oxborrow, Leo Unsworth, A. E. Ratcliffe, John Watson.

Leicester Co.—Alfred Cowling, Geo. T. Dalby, Norah Roddy, John Evans, Frederick Davies, Michael Stokes, J. MacPhee, William Gibson.

Lincoln, Bracebridge.—Geo. Alfred Moss, Arthur Edwin Hough.

Lincoln, Kesteven.—Fanny Bainbridge, William Halvin Brown, Sam Exten, Claude E. Halls, Ernest S. Palmer, John Ernest Pentelow, George M. Rowlands, Edith Courtney Wells.

London, Banstead.—Sidney W. Bowden, William Thomas Cox, Albert Edward Davis, Arthur C. Eggleton, Frederick C. Hunt, William T. M. Ims, Bernard J. Jordan, Godfrey W. Kendall, Walter Edward Southwood, Albert Stewart Webb, Albert Wright.

London, Bexley.—Marie Amanda Baker, Kathleen Mahony, Samuel Miller, William J. Pidduck, Arthur W. Reast, Henry R. Slater, Leslie Smith, Donald H. Barber, Ernest H. Harris, Harry Stanley, Ruth Rogers, Mary K. Logue, Myra Agland, Doris Patrick, Jessie Ellen Mann.

London, Cane Hill.—Catherine E. L. Davies, Catherine Kirk, Annie Keating, Annie McLauchlan, Elizabeth Rebecca Lindus, Minnie Pearson, Clara G. Lashbrook, William Blake, Albert J. Latter, William F. Martin, William H. Beadell.

London, Claybury.—Mabel Banham, Katie O'Brien, Dorothy J. Parkinson, Marion J. Iliffe, Jane Wright, Alice Slade, *E. W. Welham, A. A. Burgess, H. V. Stevens, W. Reeve, G. H. Eve, H. Hetherington, A. E. Mead, A. C. W. Radley.

London, Colney Hatch.—Frederick B. Smith, Frederick G. Gentle, Frederick E. Shelsey, Geo. Wm. Field, Geo. A. Snowden, Richard Jessop, Edward C. Horwood, Edgar Chas. Gudgin, Ellen Eliz. Flowers, Winifred Manning, Jane Clara Eliz. Nicholls, Marion Farrell, Catherine Keniry, Margaret Knox, Rachel M. Eddy, Adelaide Hurst, Mabel M. Nutall, Annie M. Wright, Elsie Gladys Brown, Ethel L. Rawlings, Maud Emma Evans, Edith H. Whiddett, Dorothy R. Miles, Florence M. Williamson.

London, Ewell, M.O.P.—Ernest Langley, James Whitehead, Alfred Jessie Smith.

London, Hanwell.—Nellie Davis, Charlotte Shields, Frances W. Hooton, Emily E. Burge, Florence E. Weeks, Martha P. Bowler, Doris P. Tonge, Mabel F. Meen, Elsie H. R. Orton, Dorothy F. Drew, Charles W. Woodage, Frank Partridge, Edward Burridge, Charles W. Virgoe, William Wheeler, Wilfred Fitzgibbon, Frederick H. Atkins, Frank Eldridge, Charles A. Calcutt, Leonard W. Darbin, James W. Payne, John McCarthy, Archibald R. Fish.

London, Horton.—Margaret Cooney, Annie J. Wimsey, Eleanor G. Gell, Grace Annie Cook, Margaret M. Wimsey.

London, Long Grove.—Arthur Brown, Arthur Henry, Arthur James Moore,

Henry Portwine, William P. Spooner, Leonard Hy. Skilton, George Henry Worrall, Hy. Wm. Cecil Wood, Lucy Dickenson, Christine Moran, Nellie C. Watkins, Peter Bourne.

London, West Park.—*Kate Ann Longland.

Middlesex, Napsbury.—John Harold White, Albert E. Colwell, Arthur W. Sturman, Ernest John Ellis, Henry G. Shadbolt, William F. Farmer, Leslie J. Spokes, Elizabeth Martin, Esther Harriett Cox.

Middlesex, Springfield.—Alfred J. Johnson, Arthur P. Chandler, Emanuel Chapple, *Edith Catherine King, Ellen A. Johnson, Ethel Elsie Cox, Dorothy Birch, Betty Myles, Edith Mabel Lewis, Winifred Gowthorpe.

Monmouth.—Ella Price, Dorothy Gwenlan, Beatrice E. Merrick, Frank G. Griffiths, Evan J. Leighton, Frederick John Dale, Herbert A. Barker.

Northampton, Berrywood.—John Lawton, Reginald G. Scotney, Norman Whitlock.

Northumberland.—Joshua Hedley, Jennie Stothard, Janet Black, Hannah McCaffrey.

Norfolk.—Frederick Graveling, Frederick Greenacre, Richard Ernest Kerry, Flora R. Lawrence, Dorothy Mary Winter.

Notts.—Thomas W. Lea, Ada Chamberlain, Edith Prime, *Ada E. M. Beedham, Grace Mitchell, Ethel Leighton, Wilfred Bamforth.

Somerset and Bath.—Hilda May Lee, Eunice Annie Morton, Daisy Maud Stutt, Dorothy Hull, Reginald J. Molland, Harold J. Bellringer, Cecil Wilfred Jones.

Stafford, Cheddleton.—Jack McGarry, Peter R. Schofield.

Suffolk.—Jack Addison, Derrick Earrey, George Eastwood, Edward K. Jordan, Janet A. Pinner.

Surrey, Brookwood.—Frederick B. Grenham.

Surrey, Netherne.—Amy L. Baker, Mary Arthur, *Emily Purdy, William Bain, Frederick S. R. Wheatley, Edwin T. Jupp, William V. Beecher, Thomas J. R. Parsons, Reginald G. Westover.

Sussex, Graylingwell.—Frederick Mitchell, Ernest Alfred Netley, Frederick Stenning, Hannah Harcombe, May Hallatt, Lilian Jury, Kathleen Wood, Annie M. Duckett, Grace Hewson, Ethel Squibb, Gertrude M. Green.

Sussex, Hellingly.—Archibald S. Wood, May K. Frost, Jennie A. Charity, Eva Elsie Mayes, Rhoda A. Sandall.

Warwick.—Daisy Robinson, Alice Burton.

Wilts.—Lottie Colman, Henry James Bottle, Victor Wallace Wheeler, Richard P. Holt, Albert E. Beavis.

Yorkshire, Beverley.—Cora Sturgess, May Carlisle, Geo. Frederick Dunn.

Yorkshire, Clifton.—Will Coates, Mollie Broderick, Nora Broderick.

Yorkshire, Menston.—George Lambert, George Wood, Grace McDonald, Frank Barnes, Mann Lister.

Yorkshire, West Riding.—John Craven Foster, Leon Robt. Shipton, Herbert H. Manton, George H. Southwell, George Robert Clifton, Harry O'Neill, John Taylor Waite, Ernest Grisdale, Leonard B. Stennett, Ada Blackburn, Mary Barber, Minnie Hudson, Eva Milner, Ellen Macauley, Annie Neill, Lucy Hildred, Agnes Binks, Catherine C. Wishart.

Birmingham, Rubery Hill.—Kitty Lucy Squire, Daisy C. Nixon, Matilda L. Holt, Esther Wheatley, Florence E. Thomas, Samuel H. Lee.

Birmingham, Winson Green.—Beatrice Morris, Clara Fowler, Violet Bennett, *Reginald Forrest.

Brighton.—Geo. Francis Mason, Ernest C. Newnham.

Bristol.—Frederick W. Mayo, Hilda Maud Upton.

Cardiff.—Mary M. Cross, Isabella McKee, Reginald V. Lane, Harry Maslen.

Croydon.—Constance Harrott, Ivy Margaret Stone.

Gateshead.—Pansy Mary Harvey, James Laing, John Robert G. Young.

Hull.—Vera Drewery, Catherine Conlan, Beatrice A. Patrick, Tom Jackson, James Blades, Walter Robinson, William Harbourn, Cyril J. Robinson.

Ipswich.—Ada A. Atkins, Maud E. Andrews.

Newcastle-on-Tyne.—Mary Teresa Gordon, Jane Annie Jackson.

Newport.—Joseph Harry Lyons, Winifred A. Murray.

Norwich.—Mabel Winifred Bartle, Hilda Alice Benn, Frances M. George, Sybil E. Harvey, Rosie C. Parr, *Cynthia Daisy Turner, Hannah Warnes, Ernest Hewitt, Charles J. Maidstone, Frank C. W. How.

Nottingham.—Emily Eliz. Hardy.

Sunderland.—Adam Wood, Jessie Alderson.

West Ham.—Ellen Bradburn, Florence G. Morley, Ada Watson, Ethel May Carter, Louisa Garson, Ella Baumber, Samuel Bartlett, Ernest Garvin, Edmund J. Latchford, Walter Long, Thomas E. Glead, Leonard Gearing.

York.—William Smith, Joseph C. Walker.

Bethlem Royal.—William Brown, Albert William Redsell, Oliver Gordon Payne, Geo. Wm. Sinden, Wm. C. Richards, Helen Dowell, Mary Griffiths, Eva Dewins, Mary J. Cameron.

M.A.B., Caterham.—Cecil John Grant, Francis Henry Redrup, Alfred F. Rumbold, Harold Tucker, Margaret Eliz. Hobbs, Dora Primrose Bailey, Carol A. Gillespy, Beatrice Hudd, Gertrude A. Monk, Maria R. Armstrong, Dorothy H. French.

M.A.B., Tooting Bec.—Donald Burns, Edward Loyd, William T. Jury, Judith L. Barnes, Marcella Kent, Alice Beryl Smith, Rose Sawyer, Lilian A. Holland, Kathleen O'Sullivan, Eveline M. Frances, Mabel Vanstorn, Jessie Hadland.

Northumberland House.—Dorothy Wadsworth, Archibald J. Johnston.

Royal Naval Hospital.—Stanley Bland, William James Kent.

Royal Victoria, Netley.—C. Frost, A. Hailstone.

York, The Retreat.—Mildred A. Ball, Winifred Bolton, Lily Walker, Irene H. Randall.

Aberdeen City.—William Kemp.

Aberdeen Royal.—Louisa Harper, Mary Hanton, Lilian Mundy, *Mary Logie or Mitchell.

Crichton Royal.—John Simpson, John Tinning, William Cairns, Robert Handley, Margaret Stuart, Margaret Simpson or Handley, Barbara Ingram, Jeanie McCulloch.

Edinburgh District.—*Louisa Rattray, Jessie R. McKenzie, Alexander Forrest.

Edinburgh Royal.—Helen King, Annie C. Hay, Catherine Robertson, Margaret Cathmore, Jennie Anderson, Leonard Martin, Alistair Mackenzie, George Walker.

Craig House.—B. MacDonald, B. Feighery.

Glasgow, Gartloch.—Catherine Moran.

Glasgow Royal.—Helena Tusky, Julia Kerrigan, Isabella Grant, Margaret McIsaac, Anna McDougall, Archibald Laing.

Glasgow, Woodilee.—Georgina Carey, Jean Pollock Wyllie, Catherine McDonald, Effy McInns, Andrew Young, Agnes Watson.

Inverness.—Flora Jane Macdonald, Catherine Cameron, Roderick Mackenzie.

Montrose.—Alice Bruce, Jane Mitchell, Helen Watson, Jessie May, Kathleen A. Dignon, Marion McD. Watson, *Nellie Brymer, Annie McGarey, Edward Henderson.

Perth District.—Williamina Green.

Stirling District.—Mary Ann Dunne, Robert McMair, Martin Houlihan, Kenneth Bain.

Belfast.—Helen Rice.

Cork.—Joseph Merriman, Patrick Kelly, John O'Regan, Geo. Wycherley.

Down.—Mary E. Cunningham, James Killips, William Mulloy, Margaret Nicholl.

Dublin, Grangegorman.—John L. Dalton, Elizabeth Breen.

Dublin, Portrane.—Julia Woods, Elizabeth Griffith, Bridget Fitzpatrick, Alice Coyne, Jane FitzSimons, Mary Finncane, John Callaghan, John Garrigan, John Farrell, Patrick Dunne.

Dublin, St. Patrick's.—Lilian Wade.

Mullingar.—Kathleen Aughey.

Omagh.—Lizzie Murray, Annie Morris, Hugh Johnston, James Jameson, William J. Bell.

Malay States.—Visuvanther Thambiah.

South Africa, Bloemfontein.—Daniel J. Malan, Anna S. Kotze, Martha J. Leschinsky, August Wm. Van Staden, Johannes J. du Plessis.

South Africa, Grahamstown.—Helen C. du Plessis, Charlotte S. Jones, Arthurine Lane, Hendrilla J. Terblanche, Phillipus R. Botha, Albert John Moore.

South Africa, Pietermaritzburg.—Cyril Hartley, Hilda J. Evans.

South Africa, Port Alfred.—Thomas Hartley Timm.

South Africa, Pretoria.—Johanna Schoeman, Gertie Van Schalbyh, Johanna Van Ouselen.

NURSING OF MENTAL DEFECTIVES CERTIFICATE.

M.A.B., Darenth.—Annie Oates, Kate Hanson, Emily Mower, Margaret Gillon, Emma Potterton, Jessie Van Tromp, Ellen Ware, Dorothy Whyte, James Prendergast, Sidney Leaney, Ernest Rowe, Sidney Goodwright, Steven Hurlock, George Henry Marsh, Percival T. Pickin, Edward R. Pobgee.

M.A.B., Leavesden.—Leonard W. Baldwin, Clifton H. Bourne, Harold Arthur Rowe, George Frederick Rew, Alice Irene Allen.

London Manor.—Doris Eggington.

Monyhull Colony.—Daisy Moore, Ivy Alix Ithamer, George Newsham.

Royal Earlswood Institution.—Edith Constance Saunders.

Stoneyetts Institution.—Mary Hamilton Waddell, Isabel Brogan, Agnes Carr Barr.

NOTICES OF MEETINGS.

Quarterly General Meetings.—November 17, 1925; February 16, 1926; May 18, 1926.

South-Eastern Division.—October 15, 1925, at the Cassel Hospital, Penshurst.

South-Western Division.—October 29, 1925, at Barnwood House, Gloucester.

Irish Division.—November 5, 1925; April 22, 1926.

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